DOCUMENT RESUME

ED 265 452	CG 018 776
AUTHOR	Griggs, Shirley A.
TITLE	Counseling Students through Their Individual Learning Styles.
INSTITUTION	ERIC Clearinghouse on Counseling and Personnel Services, Ann Arbor, Mich.
SPONS AGENCY	National Inst. of Education (ED), Washington, DC.
PUB DATE	85
CONTRACT	400-83-0014
NOTE	140p.; For a similar document on counseling college students, see CG 018 779.
AVAILABLE FROM	ERIC/CAPS, 2108 School of Education, University of Michigan, Ann Arbor, MI 48109-1259 ($10.00).
PUB TYPE	Information Analyses - ERIC Information Analysis Products (071)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Cognitive Style; Educational Diagnosis; Elementary Secondary Education; High Risk Students; *Individual Differences; *Learning Processes; Parent Education; *Psychoeducational Methods; *School Counseling; School Counselors; Student Attitudes; Student Development; *Student Needs

ABSTRACT

The major purpose of this monograph is to provide counselors in elementary and secondary schools with information on learning style to enable them to diagnose the learning style of each student, utilize counseling interventions that complement individual learning style preferences and consult with teachers and parents regarding the accomodation of student learning style preferences in the classroom and at home. Application of the learning style approach is described as involving: (1) assessing the learning style of each student; (2) identifying patterns within the counseling caseload for grouping students according to learning style preferences; (3) interpreting learning style requirements of students for counseling purposes and applying complementary counseling approaches; and (4) evaluating student outcomes as a result of using the learning style model. Case studies are provided to assist counselors in applying the model at the elementary and secondary school levels. The learning style needs of special populations (gifted, physically disabled, school dropouts) are described. Descriptions of counseling programs that use learning preferences in counseling are provided. Research studies are outlined that show evidence that using the learning style approach in teaching and counseling results in improved academic achievement, more positive attitudes toward school, and selected developmental gains, such as increased career awareness. (Author/ABB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

[redacted]

ED265452

CG018776

Counseling Students Through Their Individual Learning Styles

by
Shirley A. Griggs

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ERIC/CAPS ERIC®

The National Institute of Education

This publication was prepared with funding from the National Institute of Education, U.S. Department of Education under contract no. 400-83-0014. The opinions expressed in this report do not necessarily reflect the positions or policies of NIE or the Department of Education.

ERIC COUNSELING AND PERSONNEL SERVICES CLEARINGHOUSE
School of Education
The University of Michigan
Ann Arbor, Michigan 48109-1259
Published by ERIC/CAPS

1985

TABLE OF CONTENTS

Page

List of Tables i
About the Author iii
Abstract v
Preface vii

CHAPTER I: Increasing Counselor Effectiveness Through Individual Learning Style Identification 1
  Understanding the Learning Process 2
  Reviewing Traditional Approaches to Counseling 3
  Understanding the Need to Assess Students' Learning Styles 4
  Diagnosing Learning Style 5
  Analyzing the Basic Elements of Learning Style 8
    Environmental Elements 13
    Emotional Elements 14
    Sociological Elements 15
    Physical Elements 15
    Psychological Elements 16
  Relating Learning Styles to Effective Counseling 18

CHAPTER II: Prescribing Counseling Interventions Based on Learning Styles 21
  Matching Individual Learning Styles with Appropriate Counseling Techniques at the Elementary School Level 22
  Matching Individual Learning Styles with Appropriate Counseling Techniques at the Secondary School Level 33
  Providing for the Learning Style Preferences of Special Populations 43
    Gifted Students 43
    Physically Disabled Students 46
    School Dropouts 47
  Description of School Counseling Programs That Use Learning Style Preferences in Counseling 51

Page

CHAPTER III: Consulting with Classroom Teachers and Parents
Regarding Learning Styles 55
Explaining Individual Learning Styles 55
Accommodating Learning Style Preferences Within the Classroom 56
Environmental 56
Emotional 57
Sociological 58
Physical 58
Psychological 58
Arranging for Varied Sociological Patterns (K-12) 59
Developmental Play (K-1) 60
Magic Circle (K-6) 60
Family Sculpture (7-12) 61
Accommodating a Variety of Perceptual Strengths (K-12) 62
Creative Arts Therapy (K-3) 62
Developing an Understanding of Self and Others (DUSO) (K-8) 63
Charades (7-12) 63
Communication Skills Development (7-12) 64
Career Education Exploration (9-12) 66
Developing Effective Study Skills to Accommodate
Learning Styles (K-12) 67
Reading (K-12) 68
Vocabulary (K-12) 69
Test Taking (7-12) 70
Writing (7-12) 70
Thinking Ability (7-12) 71
Listening (K-12) 71
Notetaking (9-12) 72
Time Management Skills (K-12) 72

Page

CHAPTER IV: Research on Learning Styles 75
  Research on Learning Styles in Teaching and Learning 75
  Research on Learning Styles in Counseling 76
    Procedures 85
    Analysis 86
    Results 86
    Discussion 91
  Future Research 91

Conclusion 93
References 95

LIST OF TABLES

Page(s)

1. Learning Styles Model 6
2. Interpretation of the Learning Style Scales for Counselors 9-12
3. Learning Style Inventory of Mary Jones 28
4. Elementary School Counseling Techniques and Compatible Learning Style Preference Patterns 30-32
5. Learning Style Inventory of Tom Adams 39
6. Secondary School Counseling Techniques and Compatible Learning Style Preference Patterns 41-42
7. Learning Style Inventory of George Edwards 45
8. Learning Style Inventory of Susan King 48
9. How to Learn/Remember Effectively 74
10. Research on Teaching Through Individual Learning Styles 77-84
11. Group Counseling Objectives and Strategies 87-89
12. Analysis of Variance Results 90

ABOUT THE AUTHOR

Shirley A. Griggs, Ed.D., is Professor of Counselor Education at St. John's University in Jamaica, New York. Formerly she was a high school counselor and an assistant principal of pupil personnel services for the Detroit Public Schools. She is experienced in educational program evaluation and has served as study director at the Human Affairs Research Center and the Urban Center for Research in New York City, and as a consultant-evaluator for the New York City Public Schools.

Dr. Griggs has published over 25 articles on school dropouts, child abuse, adolescent pregnancy, death education, gifted and talented students, and counseling for learning styles. She has worked as assistant editor of The School Counselor and is presently a consulting editor of the Journal of Counseling and Development.

In 1968, she received the Distinguished Service Award of the American Association for Counseling and Development and is a member of the American School Counselors Association, Association for Counselor Education and Supervision, American Rehabilitation Counseling Association, Association for Specialists in Group Work, and Division 17 of the American Psychological Association. She is listed in over 14 biographical publications, including Marquis' Who's Who in American Women. She is a National Certified Counselor, a Certified Clinical Mental Health Counselor, and a Gerontological Counselor Trainer. In 1985, she received the President's Medal (St. John's University) for Outstanding Faculty Achievement.

ABSTRACT

Counseling for individual learning styles provides a model for integrating existing theory. The model begins with an assessment of individual needs and identifies a variety of counseling approaches that are compatible with those individual learning style preferences. It is a valuable tool for selecting appropriate counseling interventions and recognizes the validity of the vast array of counseling theories, but maintains that no single approach can meet the needs of all counselees. The fundamental thrust of counseling for individual learning styles is eclectic: it provides a strong rationale for selecting counseling approaches which will enhance counselee learning and growth. Therefore, the learning style model needs to be introduced to graduate counselor education students and practicing counselors after they are thoroughly knowledgeable concerning existing theories, techniques, and the basic tenets of counseling and human development.

PREFACE

As a counselor educator, I have witnessed the vast increase in the number of counseling theories and techniques over the past decade. The challenge of teaching courses in counseling and supervising graduate students in practicum and internship is to help them integrate existing techniques/strategies/interventions into a meaningful whole—a gestalt that provides a rationale for the practicing counselor. Counseling for individual learning styles provides a model for integrating existing theory, beginning with an assessment of individual needs and identifying a variety of counseling approaches that are compatible with those individual learning style preferences. As such, it is a tool for selecting appropriate counseling interventions and recognizes the validity of the vast array of counseling theories, but maintains that no single approach can meet the needs of all counselees. The fundamental thrust of counseling for individual learning styles is eclectic: it provides a strong rationale for selecting counseling approaches which will enhance counselee learning and growth. Therefore, the learning style model needs to be introduced to graduate students and practicing counselors after they are thoroughly knowledgeable concerning existing theories, techniques, and the basic tenets of counseling.

The major purpose of this monograph is to provide counselors in elementary and secondary schools with information on learning styles to enable them to diagnose the learning style of each student, utilize counseling interventions that complement individual learning style preferences, and consult with teachers about accommodating student learning preferences in the classroom. The learning objectives are as follows:

1. To increase counselor effectiveness through individual learning style identification and prescription.
2. To provide counselors with a schema for matching counseling techniques with the learning style preferences of students.
3. To describe selected school programs that use learning styles in counseling.
4. To outline consultation strategies to use with classroom teachers.
5. To evaluate the impact of using the learning styles approach in teaching and counseling.

This monograph could not have been completed without the assistance of personal friends and professional colleagues: Rita Dunn, Kenneth Dunn, and Gary Price were the pioneers in developing the learning style model and the assessment tools. My graduate students and practicing school counselors across the nation have helped to develop creative and innovative ways to apply the learning style model in their counseling practice. Debbie Herbert, editor of ERIC/CAPS, offered her expertise at every point along the way in the development of the monograph. My thanks and appreciation to all of these educators and counselors, and particularly to Rita Dunn, who has served as a mentor, role model, and friend.

Finally, I am most grateful to Claire Caramore, who typed the manuscript. She has a sign on her desk which reads: "I can only do thirteen things at one time!" but she always finds time for the fourteenth thing!

Shirley A. Griggs
St. John's University

CHAPTER I

INCREASING COUNSELOR EFFECTIVENESS THROUGH INDIVIDUAL LEARNING STYLE IDENTIFICATION

School counseling programs are in a state of crisis. Many school districts across the nation are experiencing fiscal cutbacks due to decreased federal allocations to education, economic recession, and urban budget deficits. As superintendents of schools and local school boards of education review budgets, frequently the first area reduced is pupil personnel service. Increasingly, school counselors are facing accountability issues: they need to demonstrate that their programs and services make a difference in the lives of youth.

The paradox is that fewer school counselors are faced with increasing student crises and problems. Rapid societal changes, family disruption, economic uncertainty, the threat of nuclear war, and increased crime are translated into more student unrest, frequently in the form of discipline problems, alienated youth, teenage pregnancies, substance abuse, and school dropouts.

Futurists, such as Alvin Toeffler (1970), predict that as the rate of societal change escalates, the complexity of problems faced by individuals will increase so that helping professionals will not exist in adequate numbers to handle the crisis. To ameliorate these personal crises, Toeffler suggests that counselors of the future will serve predominantly as consultants, identifying and training peer helpers. Thus, students who have abused alcohol or other substances and have effectively worked through their problems to become drug-free, will be trained by helping professionals to help students who are currently experimenting with and abusing harmful substances. On a societal level, many of these self-help groups are in operation, including Recovery Incorporated, Alcoholics Anonymous, widow-to-widow programs, mastectomy groups, and suicide prevention hotlines. Within our schools, many counselors have prepared peer leaders to work in groups with other students in such areas as under-achievement, family conflict, moral development issues, and career decision-making.

Another futurist, Diebold (1984), asserts that the educational establishment is one of the great reactionary institutions in our society. He points out that the amount of information produced doubles every ten years and our schools are focusing too heavily on traditional education or learning of the past, at the expense of studies that let us understand the present and anticipate the future.

Criticism of school guidance and counseling services is found both outside and within the counseling profession. A decade ago, Barnett (1972) warned that the counseling profession finds itself without an agreed upon structure of beliefs, objectives, practices, and roles with which to defend itself against possible extinction. In reviewing the status of secondary school guidance, Peer (1985) describes a bleak condition in which school counselors find themselves in ill-defined roles, without support, and vulnerable to budget reductions. Daniel and Weikel (1983) predict that counseling services will shift from the schools to community agencies and there will be a decrease in the number of school counselors. In the most pessimistic statement to date, Mosher (1980), who has prepared school counselors at both Harvard University and Boston University, remains unconvinced that school counseling has produced anything of value during the past 20 years.

Understanding the Learning Process

Educators have only recently recognized that an understanding of the way students learn is the door to educational improvement, and learning style assessment is one of the keys to an understanding of student learning. The past few decades have witnessed many innovations in our schools, including open classrooms, programmed learning, flexible scheduling, computer-assisted instruction, and alternative schools. While these programs enjoyed some success, the general reaction among most practitioners was one of disappointment, because no single model appeared to be superior. Kiernan (1979) observed:

> We now see that part of the problem was the tendency to apply a single (instructional) approach to all students. That is, all students were expected to blossom under independent study or small group discussion or open classrooms, or whatever. Student learning style challenges this premise and argues for an eclectic instructional program, one based upon a variety of techniques and structures, reflecting the different ways that individual students acquire knowledge and skills. (p. i)

Similarly, counselors need to recognize that an eclectic approach to helping students, based on the individual learning style characteristics of each student, is the key to the counseling process. Throughout this monograph, the term "counseling" is used as follows: Counseling is an interactive learning process, between a professional counselor and a counselee, that facilitates the counselee's understanding of self, others, and the environment and results in positive counselee changes in attitudes and behavior.

Reviewing Traditional Approaches to Counseling

New counseling theories are proliferating at a fast rate. A recent count (Parloff, 1980) revealed that there are over 250 conceptually distinct approaches to counseling, all vying for distinction as the most effective method. These theories differ in terms of philosophy, major personality constructs, counseling goals, the relative importance of diagnosis, counseling techniques and strategies, and targeted clientele. Beutler (1983) asserts that what is needed is a theoretical system that is sufficiently broad to encompass both the nonspecific and unique variables inherent in numerous theories, and yet specific enough to ensure that these procedures can be applied in a reliable and maximally successful way. Hence, he argues for systematic eclecticism in counseling.

In a recent review of the trends in counseling and psychotherapy, Smith (1982) surveyed a representative group of practitioners to ascertain their theoretical orientation. Over 40 percent of the practitioners identified their orientation as eclectic, which represented a higher proportion than behavioral, psychoanalytic, Adlerian, reality, person-centered, Gestalt, cognitive, and existential approaches combined. Similarly, Hollis and Wantz (1984) surveyed counselor preparation institutions in the United States and found that approximately one-fourth identified the philosophic orientation of their programs as eclectic.

Thus, school counselors are exposed to a variety of theories, but there seems to be a trend toward eclecticism in counseling because it serves to integrate existing theory and provide a framework for working with individual differences. However, the vast majority of approaches, including systematic eclecticism, are "talking-through" therapies, designed for mature, verbally proficient, and cognitively developed individuals who are capable of indepth processing that leads to insight and change. Relatively few counseling theories and techniques have been designed for use with children and adolescents, whose developmental needs are different from those of adults and who, consequently, require approaches that are congruent with their particular needs. Counseling based upon individual learning style preferences is such an approach and provides an eclectic model for assessing learning styles and utilizing existing theories/techniques/interventions that are compatible with individual needs and differences.

Understanding the Need to Assess Students' Learning Styles

Everyone has a learning style. Our style of learning, if accommodated, can result in improved attitudes toward learning and an increase in productivity, achievement, and creativity. These are reviewed in Chapter IV.

Readings about the lives of famous people frequently disclose elements of their learning styles. A Time article on Jesse Jackson ("Jesse Jackson," 1984) reveals the following about learning style preferences:

> On the Jackson campaign, schedules are merely suggestions, and Secret Service agents joke that the candidate runs on "J.S.T."--Jesse Standard Time.
>
> The message he gave black teenagers as he toured the country . . . for his PUSH for Excellence program exhorted, "Down with dope! Up with hope." School children (were encouraged) to sign pledges that they would study for two hours every school night, without radio or TV. (p. 30)

The absence of time schedules suggests impulsivity and need for low structure, both elements of learning style. The encouragement for adolescents to study without radio or television probably reflects Reverend Jackson's own need for quiet while learning, another element of style.

In an article on the career of Shirley MacLaine, another issue of Time stated ("Show business," 1984):

> "Shirley always has had a tendency to go cosmic on small evidence, to start with the general and find specifics to buttress her belief," says Hamill.
>
> MacLaine says, "My strongest personality trait is the way I keep unsettling my life when most people are settling down."
>
> She is annoyed at being called a workaholic, which by any ordinary measure she is. (p. 62)

The tendency to start with the general is characteristic of global persons; the unsettling suggests impulsivity, and the workaholic indicates a high level of motivation, all elements of learning style.

Selected learning style elements remain stable in individuals, such as time of day preferences and responsibility, while other elements appear to follow the growth curve. In general, the younger the individual, the more important it becomes to accommodate learning style preferences. For example, in learning the various calls in square dancing, an adult has adjusted to learning the calls through reading a description of the call (visual), or hearing the caller explain the call (auditory), or actually being led through the steps of doing the call (tactual-kinesthetic). Price (1980) studied 3,972 students in grades three through 12 and discovered that the younger the student, the more tactual and kinesthetic she/he is. Thus, in teaching square dance calls to young children, it would generally be preferable to use tactual-kinesthetic approaches rather than visual or auditory approaches to accommodate their perceptual preferences.

Diagnosing Learning Style

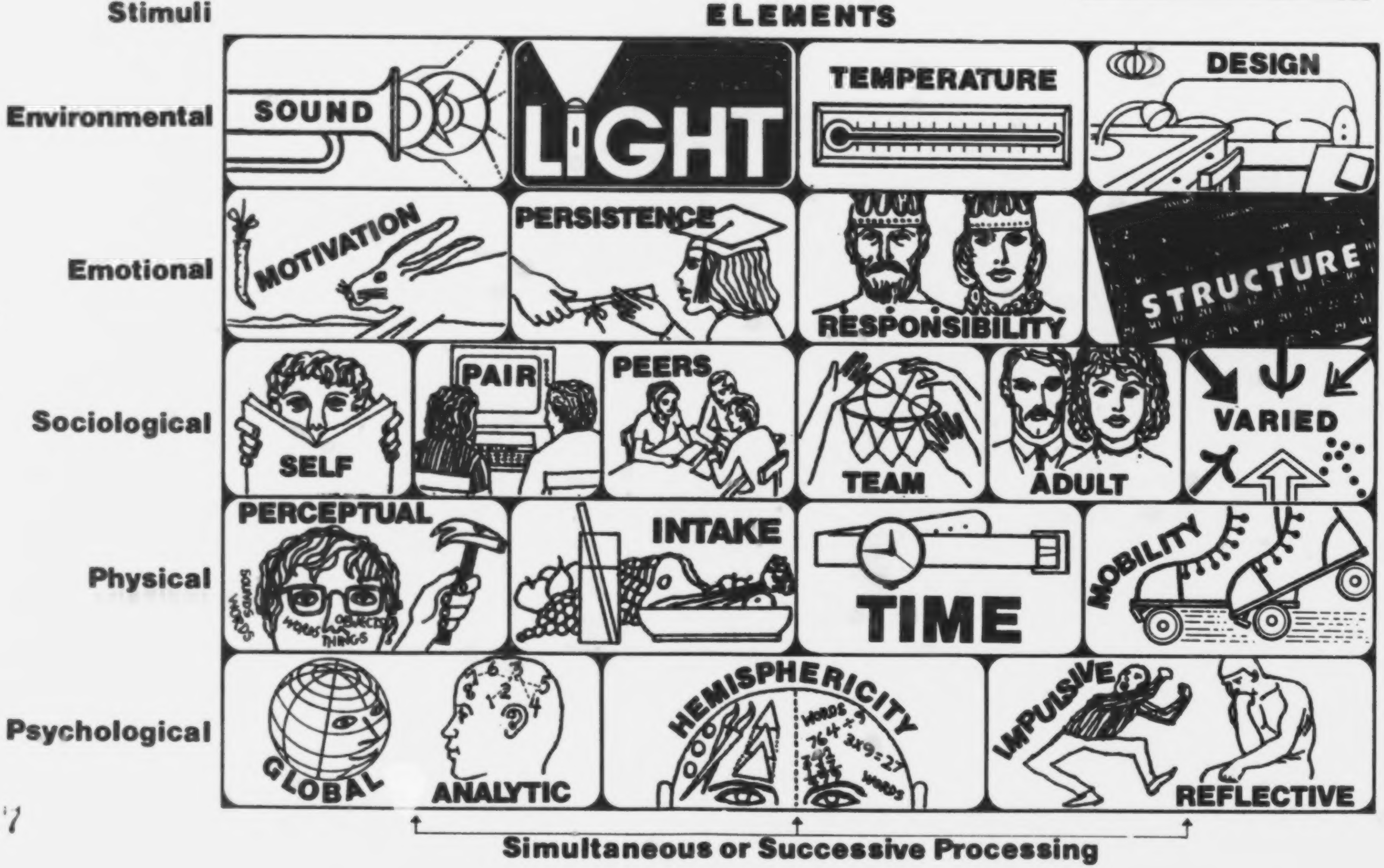
Learning style is the manner in which different elements from five basic stimuli affect a person's ability to perceive, interact with, and respond to the learning environment (Dunn & Dunn, 1978). The learning style elements, illustrated in Table 1, are as follows: (a) environmental stimulus (light, sound, temperature, design); (b) emotional stimulus (structure, persistence, motivation, responsibility); (c) sociological stimulus (pairs, peers, adults, self, group, varied); (d) physical stimulus (perceptual strengths, including auditory, visual, tactual, kinesthetic, mobility, intake, time of day--morning versus evening, late morning, and afternoon); and (e) psychological stimulus (global/analytic, impulsive/reflective, and cerebral dominance).

There are two instruments that assess learning style: the Learning Style Inventory (LSI) (Dunn, Dunn, & Price, 1985) for youth in grades three through 12, and the Productivity Environmental Preference Survey (PEPS) for adults (Dunn, Dunn & Price, 1982).

Table I

LEARNING STYLES MODEL

DESIGNED BY
DR. RITA DUNN
DR. KENNETH DUNN


Stimuli
ELEMENTS
Environmental
SOUND
LIGHT
TEMPERATURE
DESIGN
Emotional
MOTIVATION
PERSISTENCE
RESPONSIBILITY
STRUCTURE
Sociological
SELF
PAIR
PEERS
TEAM
ADULT
VARIED
Physical
PERCEPTUAL
WORDS
SOUNDS
WORDS
OBJECTS
THINGS
INTAKE
TIME
MOBILITY
Psychological
GLOBAL
ANALYTIC
HEMISPHERICITY
WORDS
WORDS
IMPULSIVE
REFLECTIVE
Simultaneous or Successive Processing

The Learning Style Inventory incorporates 22 elements relating to the environmental, emotional, sociological and physical preferences of the individual. It is based on a 104-item self-report questionnaire that was developed through content and factor analysis. The LSI uses a five-point Likert scale (for students in grades five through 12 and a three-point Likert scale for students in grades three and four), and can be completed in approximately 30 to 40 minutes. It contains a consistency key to indicate the carefulness with which each respondent has answered the questions. Ohio State University's National Center for Research in Vocational Education published the results of its two-year study of instruments that identify learning style and reported that "the LSI had established impressive reliability and face and construct validity" (Kirby, 1979, p. 72). Since examination by the Center, the LSI has evidenced predictive validity (DeBello, 1985; Krimsky, 1982; Kroon, 1985; Lynch, 1981; Murrain, 1983; Pizzo, 1981; Shea, 1983; Virostko, 1983; White, 1980).

The Productivity Environmental Preference Survey is the adult version of the LSI. It is a 100-item self-report questionnaire that identifies individual adult preferences of conditions in a working and/or learning environment. It is similar to the LSI in terms of: (a) measurement of 20 variables on a five-point Likert scale, (b) development by content and factor analysis, and (c) reliability data equal to or greater than .60 for 68 percent on the 20 variables.

Use of both learning style instruments is important in our schools, because the adult version can be used to assess the learning styles of teachers and counselors. A knowledge of our own learning style can make us aware of counseling orientations and approaches that we tend to favor over others, thus accommodating some students whose styles are congruent with our own, and possibly alienating other students. Clearly, the starting point in teaching and counseling is to respond to the learning style needs of students, which implies knowledge of our own preferences and a conscious effort to expand our repertoire of counseling interventions and techniques to respond to student diversity.

Different instruments are used to assess the psychological stimuli—Zenhausern's Revised Dominance Scale (1978) is used to assess cerebral dominance; Sigel's Conceptual Style Test (1967) is used to identify global versus analytic styles, and Kagan's Matching Familiar Figures Test (1966) is used to identify impulsive versus reflective styles.

Normative data on the LSI were obtained by testing 1,200 students in grades three through 12, representing various regions and settings; PEPS data were derived from testing 589 adults, who represented a broad range of occupational levels. For ease of interpretation, individual raw scores in each area are transformed to T-scores with a mean of 50 and a standard deviation of ten.

The computerized scoring of the Learning Style Inventory permits varied types of printouts, including:

Individual Profile provides the student's name, sex, date inventory was scored, group identification, raw scores and standard scores for each area, and a plot for each score in each area.

Group Summary is based on listing those students who have standard scores higher than 60 and lower than 40 in each area.

Sub-scale Summary indicates the number and percent of the total group that identified that particular area as important (standard score higher than 60) or not important (standard score less than 40).

Most students identify between five and seven elements, which are either high or low preferences for them.

Analyzing the Basic Elements of Learning Style

Interpretation of the learning style areas is based upon identifying preferences; that is, those elements in which the standard scores are below 40 (low preferences) or above 60 (high preferences). If scores are in the middle range (40-59) on most elements, there is no strong preference for the elements and accommodations do not have to be made in terms of the learning environment. Learning alone and peer-oriented and morning to evening are two elements on a continuum. In these cases, scores below 40 indicate preferences for learning alone or in the evening; scores above 60 suggest peer-oriented or morning learners. Table 2 illustrates the interpretation of the learning style scales for counseling purposes. Twenty elements of learning styles are represented in the table, and the six sociological elements have been collapsed into three elements with alone and peer preferences represented on a continuum. Each of these elements is discussed below, and research studies are cited to verify the importance of these elements as they relate to learning.

Table 2

Interpretation of the Learning Style Scales for Counselors

Elements	Score 20-29	Score 30-39	Score 40-59	Score 60-69	Score 70-80
Sound during Counseling	Always needs quiet when learning, doing homework. Use of silence in counseling facilitates understanding.	Usually needs quiet when learning. Needs time for reflection in counseling.	Depending on the learning task, may prefer quiet or the presence of sound.	Some kind of sound (radio, recordings) enhances the learning process. Low tolerance for silence during counseling.	Consistently works in the presence of sound. Use of background music during counseling is suggested.
Light during Counseling	Always needs very low light. Eyes are sensitive and tire easily with florescent lighting.	Usually needs dim light to learn.	No strong preference for either low or high light.	Light area enhances the learning process.	Needs bright light and seeks out rooms with lots of windows when studying.
Temperature while Learning/ Counseling	Prefers a cool room and may find it difficult to tolerate heat.	Usually seeks out a cool environment.	No strong preferences for temperature extremes.	Usually seeks out a warm environment.	Prefers a warm room and may find it difficult to tolerate cold.
Design in Counseling	Prefers informal design, such as circular arrangement in a carpeted area for group counseling.	Usually likes informality and diversity in design.	Depending on the learning task, may prefer formal or informal arrangements.	Usually feels more comfortable in a formal setting.	Prefers formal design; tends to work consistently in the same area at a desk/hard chair.
Motivation for Learning and Counseling	Exhibits low motivation for learning and may demonstrate resistance in counseling.	Tends to procrastinate; evidences difficulty in beginning tasks.	Vascillates between high and low motivation depending on the approaches used in counseling.	Generally highly motivated for learning and counseling processes.	Consistently well-motivated; accomplishes learning tasks with enthusiasm.

Elements	Score 20-29	Score 30-39	Score 40-59	Score 60-69	Score 70-80
Persistence during Counseling	Low level of persistence which may be evidenced by leaving counseling prematurely.	Somewhat limited time on-task; distractible.	Depending on level of interest in counseling, may or may not persist until goals are achieved.	Generally commits self to counseling and endures until goals are achieved.	High level of persistence in counseling; works consistently to achieve goals.
Responsibility Evidenced in Counseling	Has to be reminded and constantly reinforced in counseling. Tends to blame others for own life circumstances.	Somewhat irresponsible, which may be evidenced in lateness or absence from sessions.	Vacillates between responsible and irresponsible behavior in counseling.	Generally follows through on commitment to counseling.	High level of responsibility in counseling; assumes responsibility for self and behavior.
High Versus Low Structure in Counseling	Responds to counseling approaches which utilize minimum structure and allow free expression (e.g., gestalt therapy).	Prefers counseling approaches which allow for minimum structure, e.g., client centered counseling.	Prefers eclectic counseling approaches in which both active and passive techniques are utilized.	Prefers counseling approaches which define goals clearly and utilize structured techniques, e.g., behavioral counseling.	Strong need for structured counseling approaches and concreteness, e.g., trait-factor counseling.
Learning or Counseling Alone Versus Peers	Prefers to work things through alone; self-sufficient in many areas.	Generally prefers to resolve problems independently without peer counseling.	Depending on the situation, may seek help from peers or resolve problems alone.	Generally an effective peer group member.	Peer group counseling is the strongly preferred mode. Change is most likely to occur as a result of group activities.
Individual Counseling	Not a good candidate for individual counseling. Likely to exhibit resistance in counseling.	If given a choice, would not seek out individual counseling.	Depending on the counseling approaches used, change may occur in individual counseling.	Generally comfortable and motivated in individual counseling.	Individual counseling is the strongly preferred mode.

Elements	Score 20-29	Score 30-39	Score 40-59	Score 60-69	Score 70-80
Variety in Counseling Sociological Structure	Generally uncomfortable with a variety of approaches; tends to favor a single mode of counseling.	Probably has a preference for a single counseling mode.	Depending on the situation, may be open to a variety of counseling modalities.	Generally comfortable with diversity in counseling modes.	Prefers a combination of approaches in working through concerns, including alone, groups, and individual counseling.
Counseling Using Auditory Approaches	Tends to be "turned off" by talking approaches in counseling. Has difficulty listening and focusing on what is communicated.	Generally finds it difficult to participate in counseling if auditory approaches are used exclusively.	If the counselor is perceived as interesting and supportive, auditory approaches may be effective.	Generally auditory approaches in counseling are effective.	Responds well to auditory approaches; seems to have a tape recorder going and can recall conversations verbatim.
Counseling Using Tactual Approaches	Tends to avoid doing things tactual, such as writing, picture drawing, etc.	Generally there is limited interest in tactual approaches.	Does not have a strong preference for tactual approaches, but may find these approaches helpful on occasion.	Finds tactual approaches helpful when utilized during the counseling process.	Responds well to "hands on" approaches in counseling and the use of techniques such as puppetry, clay modeling, draw-a-picture, computer use.
Counseling Using Visual Approaches	Tends to be "turned off" by visual approaches in counseling such as bibliotherapy, or the use of pictures or films.	Generally finds it difficult to absorb visual content.	Depending on the situation, visual approaches may enhance counseling.	Generally finds visual approaches helpful in counseling; e.g., the use of modeling through videotaping.	Responds well to visual approaches; seems to have a camera going and can recall faces, scenes, places.

Elements	Score 20-29	Score 30-39	Score 40-59	Score 60-69	Score 70-80
Counseling Using Kinesthetic Approaches	Very uncomfortable with kinesthetic approaches in counseling.	Prefers not to engage in action-oriented counseling strategies.	No strong feelings about kinesthetic approaches; discretion needs to be used.	Has a preference for action-oriented counseling approaches which involve body movement.	Prefers counseling approaches that require body involvement such as roleplaying and psychodrama.
Need for Intake during Counseling	Never has a need for intake while working.	Rarely utilizes food or drink while working.	Occasionally will use intake and find it enhances the learning process.	Often uses intake while learning.	Uses some kind of intake, such as food or drink, when working or learning.
Evening Versus Morning Energy Levels	Prefers evening hours for working, learning, and studying.	Generally prefers the evening for working on tasks.	Time of day or night is relatively unimportant.	Generally prefers the morning for working on tasks.	Prefers morning hours for working, learning, and studying.
Late Morning Energy Level	Sluggish and low energy level around noon.	There tends to be a lull in energy level around 11 a.m.	Time is not a critical element here.	Generally prefers the late morning for working.	High energy level in the late morning hours.
Afternoon Energy Level	Afternoon is a poor time to schedule counseling activities.	Energy level begins to drop during the afternoon hours.	Time of day is not important; energy level is relatively constant.	Energy level begins to increase during the afternoon hours.	Afternoon is an excellent time to schedule counseling activities.
Mobility Needed in Counseling	Low need for mobility in counseling with the ability to sit for relatively long periods of time.	Generally prefers passive, low mobility, sedentary approaches in learning or counseling.	Responsive to either passive or active approaches in counseling with no strong preferences for either.	Generally prefers action, high mobility approaches in counseling.	Prefers action-oriented approaches in counseling, e.g., roleplaying, mime, art therapy.

Environmental Elements

Sound. Teachers and counselors frequently project their own preferences for sound or quiet onto students during learning or counseling periods, assuming, like Jesse Jackson, that if they require the absence of sound to concentrate, the same condition must hold for everyone. Schmeck and Lockhart (1983) suggest that inherited differences in nervous system functioning require that extroverted individuals learn in a stimulating environment, while introverted persons prefer a quiet, calm environment with few distractions. In another correlational study Dunn, Cavanaugh, Eberle, and Zenhausern (1982) found that right brain dominant high school biology students preferred music rather than silence during study times. Finally, Pizzo (1981) found that, when sixth grade students were matched with their preferred acoustic environments and the presence or absence of sound, these students scored significantly higher in reading achievement and evidenced more positive attitudes toward school than students who were mismatched on this element.

Light. Rovner (1982) found that in some individuals seasonal mood changes as strong as depression could be treated successfully by increasing bright, white light in the person's environment. The Dunn et al. (1982) study on hemispheric dominance found that right brain dominant high school students preferred low lighting while studying. In a comparative study of fourth grade students, Krimsky (1982) found that, when students' preferences for dim light or bright light were accommodated, their reading speed and accuracy improved significantly in comparison to a group whose preferences were mismatched.

Temperature. Some students prefer a cool environment, while others require a warm one. Mayo (1955) conducted technical training for adult men under two extreme temperature conditions. No significant differences in achievement were evidenced between the two groups, although small percentages in each condition reported being uncomfortable; this points out the importance of determining individual temperature tolerance prior to training. In an experimental study with seventh grade students, Murrain (1983) found that students performed better on a word recognition task when thermal preferences were matched versus mismatched.

Design. Design needs while learning may be formal, at a desk and chair, or informal, such as a couch or carpeted area. Hodges (1984) tested junior high school students to determine design requirements, and found that students learned mathematics concepts with greater precision when preferences and conditions were congruent rather than incongruent. Shea (1983) conducted a similar study with senior high school students in the area of reading comprehension and found that students who preferred informal design performed significantly better under matched than mismatched conditions.

Emotional Elements

Motivation. Highly motivated youth have a strong drive which propels them toward task achievement. Correlational studies (Cross, 1982; Griggs & Price, 1980a) reveal a relationship between a high level of self-motivation in the gifted and talented in comparison to non-gifted students. Additionally, Bolocofsky (1980) found that field dependent students evidenced increased motivation in competitive classroom situations, whereas field independent students were not motivated by competition.

Persistence. When given a task to complete, students vary in terms of their level of persistence, some resigning when difficulty is encountered and others working through all obstacles. As in the element of motivation, gifted students tend to be more persistent than non-gifted students (Griggs & Price, 1980a). In a study of seventh grade youth, White (1980) found that more persistent and responsible students achieved significantly higher on a test of specific behavioral objectives than did students who were less persistent and responsible.

Responsibility. The White study (1980) found a positive relationship between subscales of responsibility and conformity on the Learning Style Inventory and the California Psychological Inventory, suggesting that there is a strong element of conformity in responsibility. Thus, students who tend to conform to classroom and school demands are viewed as highly responsible, while those who are nonconformists are perceived as low on responsibility.

Structure. Students with a high need for structure respond well to clear objectives, delimited options, concreteness, and certainty, while those with low structure preferences welcome ambiguity and allowance for freedom of expression. Hart (1978) cites selected neurological studies to support his view that all children cannot be expected to learn in traditional, structured classrooms. Hunt (1979) found that adult students at lower stages of cognitive development prefer highly structured directions, while those at the higher stages preferred more flexibility and diversity. Finally, Ricca (1983) found that gifted students preferred independence and a minimum of structure in learning.

Sociological Elements

The sociological stimuli, as assessed on the learning style scales, distinguish among persons who prefer individual or group counseling. Frequently, counselors assume that all students are good candidates for group counseling, or that all residents in a foster care facility can benefit from group counseling. However, when assessed for their individual preferences in this area, many students report strong preferences for a single modality and reject other modalities.

Self. Independent learners prefer alternative instructional environments (Martin, 1977). A number of studies support the position that gifted students prefer learning alone rather than in groups or in adult-directed modalities (Griggs & Price, 1980a; Wasson, 1980). However, Perrin (1984) found that gifted students had significantly higher achievement on problem-solving tasks when they were grouped homogeneously with other gifted students than when they worked alone or in heterogeneous groups.

Peers. Selected students respond best to learning with peers and group counseling. Although McLeod and Adams (1979) speculated that sociological preferences are related to field independence/dependence, with field dependent persons preferring to learn with peers rather than independently, their research failed to support better task performance under the congruent condition.

Adult/Teacher. In a comparative study of secondary school youth, Gadwa and Griggs (1985) found that students who had dropped out of school had the strongest preference for teacher-directed learning, alternative students were in the mid-range, and traditional students had the lowest preferences on this element.

Physical Elements

Perceptual Strengths. A number of counseling theorists are recognizing the importance of perceptual strengths or representational systems. Bandler and Grinder (1979) maintain that once the counselor has identified the counselee's favored system and responded out of that system (auditory, visual, tactual-kinesthetic), feelings of trust and rapport increase. Price (1980) determined that preferences for tactual and kinesthetic modalities develop first, followed by the development of auditory preference. A number of studies verify that, when taught through their perceptual preferences, student learning is enhanced (Carbo, 1980; Kroon, 1985; Urbschat, 1977; Weinberg, 1983; Wheeler, 1983).

Intake. A small percentage of students like to drink or snack while learning or studying, while others do not associate these activities with oral need satisfaction. Dunn et al. (1982) found a higher proportion of right hemispheric dominant high school students preferred some form of oral intake as compared to left hemispheric dominant students. MacMurren (1985) reported statistically higher reading scores on a standardized test when children with high intake preferences were permitted to snack during the test.

Time. A number of educators recognize discernible "highs" and "lows" in students during the school day and point to the importance of adjusting school schedules to accommodate student preferences for morning versus afternoon versus evening peak times (Biggers, 1980; Brooks, 1980; Loviglio, 1980). Lynch (1981) found that, when matched for their time preferences, chronic truants attended school more frequently. In a study of elementary school youth, Virostko (1983) found that those students whose time preferences were congruent with their class schedule achieved significantly higher in mathematics and reading than those who were not matched for their time preferences.

Mobility. Some students need a great deal of mobility in the learning environment, evidenced by their inability to sit for long periods of time and the need to vary their posture and location frequently. For some adolescents and adults their best thinking is done while pacing up and down or engaging in some physical activity. In a group of seventh grade students, Della Valle (1984) found that when students were placed in settings congruent with their preferences for mobility versus passivity, achievement on word recognition tasks was higher than when placement was incongruent. Generally, counselors can accommodate mobility needs more readily than teachers, who need to identify programmatic options for students with high mobility requirements.

Psychological Elements

Psychology has recognized individual differences in personality, learning style, and behavioral patterns and developed bipolar constructs to identify some of these variations, including inductive versus deductive, global versus analytic, convergent versus divergent, field dependent versus field independent, right versus left dominant, and reflective versus impulsive.

Global versus Analytic. Global processors are holistic, visual-spatial, metaphoric, and intuitive and respond well to art therapy, relaxation, meditation techniques, and visual techniques. Analytic processors are logical, sequential, verbal and respond well to verbal techniques and cognitive-rational counseling approaches. Coop (1968) found that non-analytic college students achieved better through teacher-structured rather than problem-solving methods. Generally, studies of the cognitive styles of high school students find that global students' achievement is higher when taught by deductive methods, while analytic students' achievement is higher when taught through inductive methods (Brennan, 1984; Douglass, 1979; Tanenbaum, 1982; Trautman, 1979).

Hemispheric Dominance. Students who are strongly left dominant tend to be analytic, highly verbal, auditory learners and respond to inductive approaches, while students who are right dominant are non-analytic, respond well to tactual-kinesthetic or visual learning modalities, and favor deductive learning approaches. Dunn et al. (1982) found that right dominant high school students had strong learning style preferences for informal design, music while studying, oral intake, high mobility, and dim lighting. In studying the process of second language acquisition, Benderly (1981) found that young children learned best through left brain, conversational approaches while adolescents learned better through right brain, visual-tactile methods. In a study of low-achieving fourth grade students, Jaronsbeck (1984) concluded that rights learned better when taught through activity-oriented groups and lefts achieved better than rights in the conventional control groups.

Impulsive versus Reflective. Research on analytic and non-analytic modes led to the identification of a "reflection-impulsivity" dimension (Keefe, 1979). The reflective student tends to analyze and thoroughly differentiate a complex concept; an impulsive student is inclined to make quick and often erroneous responses. In comparing performance, Odom, McIntyre, and Neale (1971) found that impulsive learners made errors and reflective learners needed fewer trials to learn. Matson (1980) demonstrated that impulsivity could be modified through redesigning instructional materials and through teacher modeling.

Relating Learning Styles to Effective Counseling

The school counselor's role is a comprehensive one: individual and group counseling with students, testing and interpreting assessment data in educational-vocational areas, developing, conducting, and evaluating programs in career education and psychological education, training and supervising peer helpers, and consulting with teachers, parents, and administrators.

Counseling students for their individual learning styles involves the following steps:

1. Assessing the developmental needs of students.
    - Awareness of the developmental needs, psychosocial crises, and developmental tasks that are stage-related and common to children or adolescents overall.
    - Determination of special needs that are specific to the school population in economic, social, or family areas. (Special education students, low income families, single parent families, bilingual/bicultural students, high risk students, gifted and talented students, etc.)
2. Developing a comprehensive, developmental counseling program based upon the needs assessment.
3. Assessing the individual learning styles of students, counselors, teachers, and staff members.
    - Counseling students to help them develop an understanding of their own learning style preferences.
    - Providing inservice education for teachers, counselors, administrators to help them assess their own learning styles and understand how their styles of teaching and counseling impact students.
4. Planning teaching and counseling interventions that are compatible with the learning style needs of students.
    - Matching specific teaching and counseling techniques/approaches/interventions with selected student or student group requirements.
    - Using a variety of techniques and interventions to accommodate individual needs.
5. Evaluating teaching and counseling outcomes to determine the extent to which program objectives and counseling objectives have been achieved.

The basic assumptions of counseling for individual learning styles are listed as follows:

1. Individuals are unique and the counseling techniques/strategies/interventions must be tailored to accommodate uniqueness.
2. Counseling is fundamentally a learning process that, if successful, involves positive changes in the attitudes and behavior of the counselee.
3. Individuals have learning style preferences, which, if attended to, will facilitate the learning process.
4. The counselee is knowledgeable in terms of identifying his/her learning style preferences and can report accurately these preferences on a self-report inventory.
5. Counselors can plan interventions which are compatible with the learning style preferences of the individual counselee.

The fundamental tenet of counseling for individual learning styles is that, if the counseling approaches are compatible with the individual learning style preferences of the counselee, the goals of counseling will be achieved.

An example of one learning style element—the need for high versus low structure—is discussed to indicate how the school counselor can accommodate students through counseling and consultation activities.

Students' needs for varying amounts of structure can be accommodated in counseling by grouping students according to their needs. For example, in group counseling with junior high school students, who require a high degree of structure, the following procedures are desirable:

- Clearly delineate counseling objectives and goals during the initial stages of counseling.
- Use highly structured counseling approaches, e.g., behavioral and cognitive approaches (rational-emotive-therapy or behavioral counseling) which present a problem-solving, highly structured approach to problem resolution.
- Use homework, schedules, and time management strategies to assist students in applying learning to their daily activities.
- Use a theme approach during counseling—identifying areas of common concern such as despondency, friendship, anger, jealousy, achievement, security, divorce—as a way to focus students.

In consultation with teachers and parents, counselors should emphasize the need for accommodating students who require high degrees of structure by stressing the importance of:

- Highly structured classroom techniques, including instructional packages, programmed sequential learning, and computer-assisted instruction.
- Concrete and specific homework assignments, with guidelines on how to proceed with each assignment.

Conversely, students who prefer little structure will resent too many guidelines. They welcome choices, options, and the opportunity to pursue learning through creative and divergent approaches. In group counseling, for example, client-centered and existential approaches are desirable, because they encourage the student to identify areas of concern, explore these concerns in a variety of ways, and arrive at change through insight. In consultation with teachers and parents, counselors should emphasize the need for accommodating students who require low structure by stressing the importance of:

- Classroom techniques such as creative writing, open discussion, and independent study, which allow for the pursuit of learning objectives through a variety of modalities.
- Open-ended homework with individual projects which allow students to reinforce classroom learning through a variety of methods.

The following chapters review prescriptions for counseling interventions based upon a combination of the different learning style elements that have been discussed thus far.

CHAPTER II

PRESCRIBING COUNSELING INTERVENTIONS BASED ON LEARNING STYLES

Sarah Fletcher, the counselor at Lincoln Elementary School, looked across her desk at Jim Hawkins, who had been sent to her office from his science class. She had studied the hastily written note from his sixth grade science teacher: "Jim refuses to learn, openly plays with his Rubik's cube, constantly fails to submit homework assignments, and is failing the course. Help!"

Mrs. Fletcher addressed Jim with, "Tell me about yourself, Jim, and how you feel about school." Jim remained sullen, with his head down, feet shifting nervously, and avoiding eye contact. He seemed to have "tuned out" Mrs. Fletcher completely.

She tried again, with concern in her voice, "I'm here to assist you, Jim. We can work on your problems and resolve them. It will help if you can confide in me." Jim looked up and met her glance; his look conveyed a mix of frustration, disbelief, and anger.

Attempting to reflect his feelings, Mrs. Fletcher bent toward him saying, "You seem pretty upset with things here in school, Jim. You're angry because your science teacher sent you from class and you're telling yourself that I'm probably the same--that I can't possibly understand you either." They waited for some time in silence, with Mrs. Fletcher studying Jim intensely and Jim appearing to show more interest in the floor than in the counseling session. At last, the dismissal bell rang and Jim raced for the door, slamming it as he left the office.

Sarah Fletcher began to reflect upon all the Jim's in her counseling group—students whom teachers could not reach in the classroom and were labelled "nonachievers" or "learning disabled." She seemed to encounter the same difficulties in counseling these students; they demonstrated apathy and resistance. In searching for a means to reach Jim, and deal effectively with his academic problems and concerns, Mrs. Fletcher asked herself a question which is fundamental in counseling:

> Which counseling approaches (behavioral, existential, Adlerian) are most appropriate with which types of clients (background variables, individual learning styles, personality characteristics) with what kind of problem (educational, vocational, social, personal) in what kind of setting (individual counseling, group counseling, classroom, peer helping), using what kinds of techniques/interventions/methods (cognitive techniques, auditory versus visual versus tactual-kinesthetic approaches, structured versus unstructured modalities, etc.)?

This chapter is designed to assist school counselors, like Sarah Fletcher, to design counseling interventions and strategies that are compatible with the learning style characteristics of students like Jim Hawkins and other students with special needs.

Matching Individual Learning Styles with Appropriate Techniques at the Elementary School Level

Counseling may be developmental, preventive, or crisis in nature. Counselors utilizing a developmental approach recognize that human development is characterized by stages, with each stage containing a different psychosocial crisis and different developmental tasks which must be mastered. The developmental approach is the basis of counseling for individual learning styles and will be discussed later in more detail.

The preventive approach to counseling is primarily programmatic but related to specific concerns. For example, preventive counseling might involve a late elementary or middle school sex education program, designed for the purpose of alleviating future anxieties about sexuality and sexual relationships. Counselors work with students to help them understand themselves in relation to sexual concerns, so that they are better prepared to handle them in the future. Another programmatic approach focuses on self-awareness as it relates to future career choices and career preparation. Drug awareness, divorce, leisure time options, and communication skills are other areas that can be approached systematically by counselors.

Crisis counseling involves providing support and intervention during some crisis situation, such as loss of a parent, divorce or separation, illness, failure, etc. The counselor helps the young person deal with the immediate situation and find an effective solution which will enhance overall functioning. Additionally, school counselors receive referrals from classroom teachers, indicating that students are experiencing crises.

Research indicates that teachers refer students to counselors for the following problems (Blackham, 1977):

1. Emotional problems--immaturity, impulsivity, moodiness, anxiety, hyperactivity, and withdrawal.
2. Intellectual deficiencies--inadequate ability, deficits in memory, short attention span, perceptual impairments, poor study habits, and underachievement.
3. Motivational deficits--lack of ambition, lack of interest, low levels of aspiration, and negative attitudes.
4. Moral deficits--lying, stealing, obscenity, sexual indiscretion, and underdeveloped values.
5. Physical difficulties--chronic illness, orthopedic handicaps, poor health habits, and psychosomatic problems.
6. Maladaptive behaviors--aggressive anti-social behavior, substance abuse, family conflicts, isolation, and uncouth behavior.

Human development theorists provide the framework for counseling students through their individual learning styles. Erik Erickson has identified nine developmental stages, commencing with infancy and progressing through to later adulthood. These stages, together with the psychosocial crisis of each stage, are as follows:

1.	Infancy (0-2 years)	Trust versus Mistrust
2.	Toddlerhood (2-4 years)	Autonomy versus Shame/Doubt
3.	Early School Age (5-7 years)	Initiative versus Guilt
4.	Middle School Age (8-12 years)	Industry versus Inferiority
5.	Early Adolescence (13-17 years)	Group Identity versus Alienation
6.	Later Adolescence (18-22 years)	Individual Identity versus Role Diffusion
7.	Young Adulthood (23-30 years)	Intimacy versus Isolation
8.	Middle Adulthood (31-50 years)	Generativity versus Stagnation
9.	Later Adulthood (51 years-)	Integrity versus Despair

Students enrolled in elementary schools are predominantly in the third or fourth stages of development; that is, the early and middle school age. During this period, the child learns the fundamental skills of the culture. There is increased emphasis on intellectual growth, competence, and a growing investment in work. The developmental tasks of this stage include: (1) social cooperation; (2) self-evaluation; (3) skill learning; (4) team play; (5) learning appropriate sex roles; and (6) developing conscience, morality and a set of values. Social cooperation is largely focused on the same-sex peer group and results in increased movement from egocentric behavior to becoming increasingly sensitive to group norms and pressure. While the early school child focuses primarily on the teacher for approval and acceptance, the middle school child focuses on the peer group. This is a period of "best friends," private jokes, and secret codes. During this period, the child is engaged in self-evaluation; concerned with placement in the group and sensitive to labeling by teachers and peers. Skill learning involves the acquisition of intellectual, artistic, and athletic skills. The child learns the fundamentals of team play, including competition and learning to subordinate personal goals for group goals.

The psychosocial crises of elementary school children are initiative versus guilt and industry versus inferiority. Initiative involves active inquiry and investigation of the environment; the child is curious about everything! If curiosity is stifled or the child is severely restricted in the area of expression, self-doubt and guilt develop. Industry is characterized by an eagerness for building skills and performing meaningful work. Each new skill acquired results in increased independence and self-esteem. Inferiority and feelings of inadequacy result from two sources: self and environment. Personally, the child may have physical, emotional, or mental limitations that prevent the acquisition of certain skills. Environmentally, children may be grouped and graded on the basis of how they compare to others. In extreme cases, teachers observe the reluctance, self-doubt, and withdrawal of the child who feels extremely inferior.

The central process during the elementary school years is education, which is responsible for the development of a personal sense of industry. Frequently, children are placed in situations where the probability of success is minimal: adults set expectations or goals beyond reach. The school environment may be extremely competitive, resulting in failure for some students. Parents may tie success with acceptance, failure with rejection. During this stage it is essential that educators recognize individual differences: some students work in creative spurts, some require a high degree of structure, while others thrive on minimal structure; some prefer to learn independently, while others are motivated to learn through peer group interaction. It is important for educators to diagnose individual learning styles, and generate an educational environment that provides for these varied styles.

In deciding upon the counseling interventions that are most appropriate, the counselor should: (1) analyze the learning style profile of the student; (2) consult Table 2 to interpret the profile in terms of preference (scores over 60) and rejection (scores under 40); and (3) select counseling interventions that are compatible with these learning style requirements.

Elements of learning style which are compatible with selected counseling objectives and interventions for students at the elementary school level are outlined below according to the developmental tasks of early and middle childhood.

1. Developmental Task: Social Cooperation

   Counseling Objective: To help students develop social skills, including an understanding of others, cooperation and teamwork, and the meaning of friendship.

   Compatible Learning Style Elements:

   Emotional elements--high need for structure; low on motivation and responsibility
   Psychological elements--global orientation, right hemispheric dominance

   Counseling Intervention: Conduct group guidance sessions in a sixth grade classroom, utilizing the DUSO (Dinkmeyer, 1970) kit containing a problem, a story, roleplaying activity, puppetry, and discussion outline in such theme areas as friendship, cooperation, winning and losing, keeping a secret, and self-confidence.

2. Developmental Task: Self-Evaluation

   Counseling Objective: To help students build wholesome attitudes toward self and others.

   Compatible Learning Style Elements:

   Sociological elements--self- and adult-motivated
   Emotional elements--low motivation
   Psychological elements--high impulsivity

   Counseling Intervention: Through "self-enhancing educational" techniques (Randolph & Howe, 1973) the counselor helps the student focus on how to relate and interact with others effectively, through problem-solving, self-control, and self-direction methods. The intervention is particularly useful with underachieving and alienated youth.

3. Developmental Task: Skill Learning

Counseling Objective: To help students who are experiencing adjustment problems express feelings and communicate more effectively.

Compatible Learning Style Elements:

Physical elements--tactual and kinesthetic perceptual preferences
Emotional elements--low structure
Sociological elements--self- or adult-oriented

Counseling Intervention: Conduct individual counseling sessions with shy, withdrawn, aggressive or anxious children, using play media such as dolls, puppets, clay, toys, and drawing materials. Through supportive interactions with the counselor, children learn to express themselves more effectively.

4. Developmental Task: Learning Appropriate Sex Roles and Work Orientation

Counseling Objective: To consult with the fifth grade social studies teacher to develop a unit on work orientation and awareness of a variety of work settings.

Compatible Learning Style Elements:

Sociological elements--peer- and group-oriented
Physical elements--high mobility; accommodates a variety of perceptual preferences, including tactual, kinesthetic, auditory, and visual

Counseling Intervention: Each student is encouraged to spend a half-day with parents or other adults on the job to obtain a clearer picture of the mother's and father's occupation and work setting. Follow-up activities might involve writing about the experience, giving oral reports, or discussing the field trip in small groups.

5. Developmental Task: Developing Conscience, Morality, and a Set of Values

Counseling Objective: To facilitate the moral development of students and clarify values.

Compatible Learning Style Elements:

Sociological elements--self and adult
Physical elements--auditory perceptual preference; schedule the counseling session in the morning or afternoon according to student preference

Counseling Intervention: Through the mutual storytelling technique (Gardner, 1971), a tape recorder is used in individual counseling in which the student is guided to create a story with a moral. The counselor follows up with a story that reflects a healthier resolution or a more mature approach to the situation.

Hence, the role of the elementary school counselor is a comprehensive one, involving aiding students with their educational, career, and personal development, and helping them plan for the progress toward educational and vocational goals. School counselors work with students, both individually and in groups. They also work in a consultative role with teachers, administrators, parents, and community agency personnel. Extensive use is made of school records and testing results to help students develop their individual plans (Pietrofesa, 1978).

A case study is provided to assist elementary school counselors in applying the learning style approach in counseling. Mary Jones, a fifth grade student, is ten years of age. Her Learning Style Inventory results are illustrated in Table 3. Strong preferences, or standard scores of 60 or above, include design, peer learning, tactual and kinesthetic approaches. Scores of 40 or below indicate low areas and the profile indicates that Mary has minimal motivation and responsibility and is not visually oriented. An interpretation of this profile in terms of counseling implications indicates the following about Mary's learning style:

- Prefers a formal design; tends to work consistently in the same area at a desk and straight chair.
- Group counseling with peers is the strongly preferred mode of counseling.
- Responds well to "hands on" approaches which involve body movement.
- Prefers action-oriented counseling approaches which involve body movement.
- Tends to procrastinate and evidences difficulty in task completion.
- Somewhat irresponsible, which may be evidenced by tardiness to school.
- Generally finds it difficult to absorb visual content.

Additionally, Mary is an only child with achievement-oriented parents, who exert pressure on Mary to excel in school. Otis-Lennon Mental Ability Tests indicate that she has a 120 I.Q., but the California Achievement Tests indicate average achievement in major subject areas.

For counseling Mary, group counseling with other students who evidence learning style preferences for tactual-kinesthetic modalities is indicated. Excerpts from the third group counseling session, designed to help Mary and her peers become more responsible and less procrastinating, are described as follows:

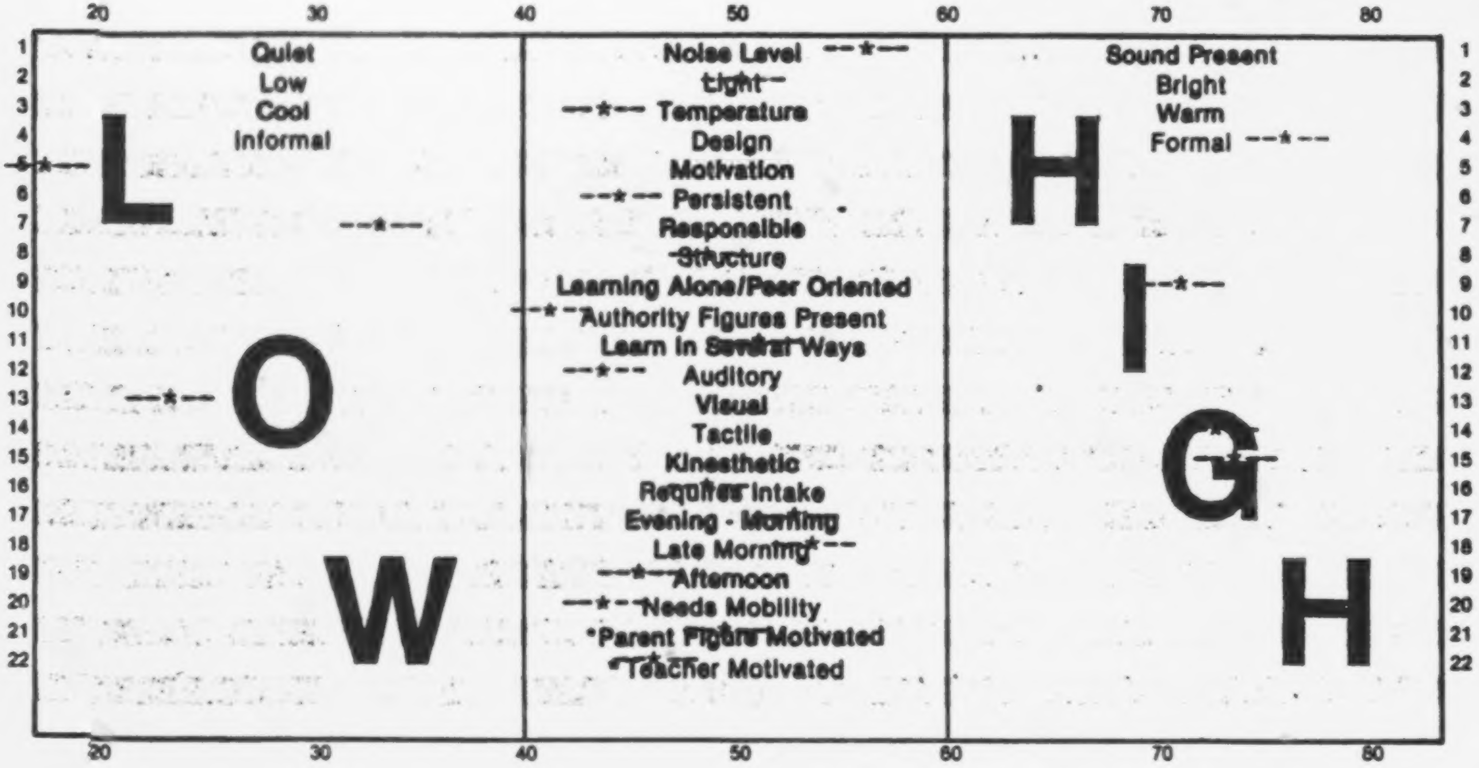
Table 3
Learning Style Inventory of Mary Jones

Name: **Sex:** F **Year in School:** 5 **Date of Birth:** 75 / 03 Yr./Mo. **I.D. No.:**

Group Identification: **Special Code:** **Date:** 08-11-1985 **Group No.:** 999

PREFERENCE SUMMARY

Raw Score	Standard Score				
10	57	1	Quiet	Noise Level	Sound Present
8	51	2	Low	Light	Bright
10	44	3	Cool	Temperature	Warm
12	77	4	Informal	Design	Formal
10	0	5		Motivation	
10	45	6		Persistent	
4	33	7		Responsible	
8	49	8		Structure	
24	72	9		Learning Alone/Peer Oriented	
8	42	10		Authority Figures Present	
10	52	11		Learn in Several Ways	
8	44	12		Auditory	
3	24	13		Visual	
15	73	14		Tactile	
21	74	15		Kinesthetic	
10	49	16		Requires Intake	
12	53	17		Evening - Morning	
8	54	18		Late Morning	
10	46	19		Afternoon	
8	44	20		Needs Mobility	
8	50	21		*Parent Figure Motivated	
9	47	22		*Teacher Motivated	



CONSISTENCY: 100

PROFILE NO.: 5

Counselor:	We agreed last week that today's session would be spent on "things we put off or delay" and a number of you--Mary, Juanita, and Joshua--stated that you tend to delay on homework, household chores, or going regularly to church activities. Let's try to find reasons for why we delay these activities instead of getting the job done!
Joshua:	I think going to Bible meetings is boring. It's more fun to watch TV or play with my computer games!
Mary:	It's always my mother's idea that I do my homework as soon as I come in from school. I want to put it off. Sometimes I can get it done during reading class. Then I have more time at home for other stuff.
Susan:	But most of the time you don't get your math done, Mary. Mrs. Rotter is always on your case.
Mary:	Yeah. I know I'm going to get a bad grade in math and that will really upset my mother.
Counselor:	It sounds like you know that your excuses for putting off homework aren't really helping you, Mary. What are some things that might help Mary get homework and other tasks completed on time?
Juanita:	My mom cuts my allowance if I don't get jobs done. She says that's what happens when you're grown-up and don't work--no money.
Joe:	Mary could make her homework more fun and work on it with Susan.
Susan:	Yeah, I could work with Mary. I get the homework done first and then I watch TV and stuff.
Tom:	Mary could make a schedule and divide up her time better.
Counselor:	Some of you have some good suggestions for Mary. Let's roleplay some of these different ideas to show how Mary would behave differently if she got jobs done on time.

(Mary is asked which of the suggestions she would like to roleplay, roles are assigned and discussed, the roleplay is demonstrated, and discussion follows.)

The range of counseling techniques that are predominantly non-talking-through interventions, together with a description of the technique and learning style characteristics accommodated through the technique, are listed in Table 4.

Table 4

Elementary School Counseling Techniques and Compatible Learning Style Preference Patterns

Techniques	Description	Learning Style Characteristics
Modeling	Observe the behavior of another person--live (counselor, friend, peer), or symbolic (video tape, films, books), or covert (imagine performing the desired behavior).	Visual perception; high need for structure.
Magic Circle	A technique for classroom use, where pupils and their teachers create an accepting climate in which they share their thoughts and feelings, develop confidence, solve problems, and learn to interact with each other effectively.	Informal, casual, relaxed design. Auditory approach predominantly. Both global and analytic approaches/preferences can be accommodated.
Art Therapy	The use of art activities (drawing, painting, clay modeling, collage construction) to provide emotional release and communicate nonverbally.	Tactual perceptual preference; low structure; accommodates a variety of sociological preferences (self, peer, adult).
Bibliotherapy	The student is given carefully selected material to read, based on age, emotional problems, and personality needs. Provides insight and understanding of self.	Visual perceptual preference; high structure, high motivation and responsibility, self sociological preference.
Block Play	The child uses a number of blocks to construct people, places, and things which she/he experiences and discusses the constructions with the counselor.	Kinesthetic perceptual preference; low structure; adult sociological preference.
Photographs	The student is asked to bring photographs of self, family, friends to a counseling session. This technique can be used to elicit personal crises or problems from specific developmental periods.	Visual and auditory perceptual preferences; adult sociological preference; moderate structure.

Techniques	Description	Learning Style Characteristics
Puppetry	A technique of manipulating small-scale figures to create or re-enact situations, or events, for therapeutic counseling.	Kinesthetic and visual perceptual preferences; low structure; right brain dominant; accommodates varied sociological preferences (adults, peers).
Psychodrama	Small groups extemporaneously dramatize situations or past experiences to afford catharsis and social relearning for the participants and/or protagonist.	Kinesthetic; visual, auditory, tactual preferences; low structure; high motivation; peer sociological preferences; right brain dominant.
Creative Writing	The student creates a real or imaginary story to share in individual or group counseling. The story should focus on feelings, situations, or concerns that the student is experiencing.	Tactual, auditory perceptual preferences; high motivation; high responsibility; accommodates varied sociological preferences.
Serial Drawing	The student creates a number of drawings, which successively tell a story that is shared visually and verbally in a counseling session.	Tactual, visual, and auditory perceptual preferences; right brain dominant.
Mime	In a group counseling setting, students portray some aspect of their character or dramatize a situation, through body language rather than words.	Peer sociological preference; visual perceptual strength; right brain dominant.
Charade Games	In a group counseling setting, students act out their feelings as they are related to specific theme areas (anger, failure, jealousy and guilt) while other group members try to interpret the message.	Peer sociological preferences; kinesthetic and visual perceptual strength; right brain dominant.

Techniques	Description	Learning Style Characteristics
Mutual Storytelling Technique	The counselor creates a story that reflects a conflict situation that the student is experiencing. The student responds by resolving the conflict. The counselor then identifies other options that are more self-enhancing or effective and discusses these with the student.	Accommodates adult sociological preferences; right brain dominant; auditory perceptual strength; need for high structure.
Music Therapy	Musical activity can be used to elicit such behaviors and feelings as: self-awareness, creativity, group solidarity. Techniques range from: a. Responding to the musical environment with pleasure. b. Learning music skills for successful group participation. c. Applying music skills in new situations.	Sensory awareness, particularly auditory; requires sound; high need for mobility.
Musical Improvisation	A creative and spontaneous technique for helping the counselee express a feeling through music, either vocal or instrumental.	Involves divergent thinking, low need for conformity; accommodates a variety of perceptual strengths; requires sound.
Game Therapy	Games can be used in counseling to: a. Serve as a projective assessment tool. b. Set up a situation in which anxiety about certain conditions can be confronted and worked through. c. Understand societal norms through analogies to "rules of the game." d. Allow for the counselee's playfulness and fantasy activity to emerge. e. Develop problem-solving and coping behaviors in the client.	Right brain dominant; high need for mobility; accommodates a variety of perceptual strengths; peer and group counseling preferences.

Matching Individual Learning Styles with Appropriate Counseling Techniques at the Secondary School Level

An examination of the ways in which learning style characteristics change as students advance from grade to grade was conducted by Price (1980). A total of 3,972 subjects in grades three through 12 completed the LSI during the 1979-1980 school year. Some of the statistically significant findings revealed were:

- The higher the grade level, the more sound and light were preferred.
- The higher the grade level, the less preference was indicated for formal design.
- Self-motivation decreased during grades seven and eight, but then a gradual increase was evidenced in each of the grades thereafter.
- The higher the grade level, the less teacher-motivated students became.
- The higher the grade level, the less motivated in general students were. The biggest shift was between grades seven and eight, with grade 11 having the highest peak for being unmotivated.
- An overall decrease in the need for structure was evidenced the higher the grade.
- Although the junior high school years are considered strong periods for peer influence, there was a greater need to learn/study alone in grades nine, ten, 11 and 12 than during any other interval.
- The highest need to learn with peers occurred in grades six through eight; the lowest need was in grade 12, followed by grade nine, with a slight increase in grades ten and 11.
- The younger the student, the more tactual and kinesthetic he/she was. Those modalities were followed by the development of visual strengths and, beginning with grades five and six, the development of auditory strengths.

Students enrolled in secondary schools are predominantly in the fifth stage of development, that is, early adolescence. During this period, the adolescent is engaged in a search for identity. This stage is characterized by rapid physical changes, significant conceptual maturity, and heightened sensitivity to peer approval. The adolescent begins to think about the world in new ways, which has profound implications for counseling and learning. Conceptual development results in a more flexible, critical, and abstract view of the world so that counselors can utilize techniques which involve deep levels of cognitive processing.

The fundamental question for the adolescent is: "Who am I and where do I belong?" Group identity and a strong sense of belonging facilitate psychological growth and serve as integrating forces. Negative resolution of these issues results in alienation, loneliness, and isolation.

Adolescent development has been described as a period of intense stress and turmoil. The adolescent is torn between a need to be a conformist and behave and think like peers and a need to develop individuality and uniqueness. Adolescents growing up in a nuclear and highly technological period are cognizant of how a rapidly changing world, filled with international tensions, impacts their future.

Possible problems that develop during adolescence are briefly cited as follows:

- Physical maturation challenges adolescents to develop heterosexual relationships which are based upon mutual respect and sound moral principles. There is a societal pressure to date, be popular, and yet delay intimacy and marriage. Studies reveal that larger numbers of adolescents of both sexes become sexually active earlier, which sometimes results in teenage pregnancy, abortions, and venereal disease.

- Intellectual development results in the ability to conceptualize, engage in inductive and deductive reasoning, and to evaluate the "grey" in issues, thus moving away from either-or and black-white thinking. Limited life experiences frequently result in difficulty in handling emotions, such as loss, anger, joy, or frustration. Emotional difficulties are sometimes reflected in depression, suicide attempts, perfectionism, compulsivity, substance abuse, eating disorders, or high levels of stress.

- Educational-vocational decision-making should follow the adolescent's quest for an answer to "What shall I do with my life?" The adolescent needs to develop skills in self-assessment, problem-solving, vocational information, and job-seeking areas. Increased academic competition, competency testing, and coping with disappointment and failure can result in dropping out of high school and making vocational decisions prematurely.

- The increased need for autonomy, independence, and disengagement from parents frequently results in family conflict, limited or strained communication between adolescents and parents, and neglect and/or abuse. Family instability, reflected by increased divorce and separation, can result in teenage runaways/delinquency.

- Adolescents need to clarify their values and develop a philosophy of life that is thought-through rather than blindly accepting parental and/or societal values. Adolescents from culturally different families frequently experience difficulties in reconciling home and societal values.

- Peer friendships take on a critical importance as adolescents become conscious of status, cliques, and complex social expectations. Perceiving self as a "loner," "outsider," or "misfit" can seriously impact self-esteem.

The challenge of the secondary school counselor is to respond to the crises of adolescents, while concurrently implementing a developmental-preventative program that is responsive to the psychosocial needs of the group-at-large. Secondary schools are frequently large, formal institutions, which students can perceive as cold, uncaring, and alienating. In addition to developing and implementing a comprehensive counseling program, the counselor has a major role in consulting with administrators and teachers to facilitate the establishment of a humanistic environment, which is responsive to individual student needs and learning style differences.

Elements of learning style which are compatible with selected counseling objectives and interventions for students at the secondary school level are outlined below according to the developmental tasks of early adolescence.

1. Developmental Task: Self-Concept Development

Counseling Objective: To identify aggressive, assertive, and withdrawn behaviors and to help students assess themselves in these areas.

Compatible Learning Style Elements:

Sociological elements--peer preferences
Physical elements--high mobility, visual and auditory strengths
Psychological elements--right brain dominant

Counseling Intervention: Roleplay interpersonal group counseling using a variety of behavioral responses and encourage students to evaluate these vignettes in terms of "how they behave" versus "how they would like to behave."

2. Developmental Task: Membership in Peer Group

Counseling Objective: To identify high risk students who are in danger of dropping out of school and explore ways to become more involved in extracurricular activities, improve study skills, and define life goals.

Compatible Learning Style Elements:

Sociological elements--adult-oriented
Environmental elements--informal design
Physical elements--auditory and visual strengths

Counseling Intervention: In individual counseling assist students in understanding their individual learning styles, applying these findings in the classroom and in studying, and identifying extracurricular activities that would accommodate their learning style requirements.

3. Developmental Task: Increased Need for Independence

Counseling Objective: To assist students in resolving dependence/ independence issues in relationships with parents.

Compatible Learning Style Elements:

Emotional elements--high structure
Sociological elements--peer preferences
Psychological elements--left brain dominant

Counseling Intervention: Use transactional analysis techniques in groups to analyze ego states (adult, child, parent) and game playing.

4. Developmental Tasks: Develop Heterosexual Relationships; Continued Moral Development and Values Clarification

Counseling Objective: To clarify values regarding premarital sex and to help adolescents deal with pressures for sexual intimacy.

Compatible Learning Style Elements:

Physical elements--high mobility, auditory, tactual, kinesthetic
Sociological elements--adult and peer preferences

Counseling Intervention: Initially schedule same gender groups, co-led by counselor and physical education teacher, in which group members discuss their values, explore the positive and negative aspects of various value systems, and roleplay situations in which values are tested.

5. Developmental Task: Educational and Vocational Decision-Making

Counseling Objective: To assist students in developing problem-solving and decision-making skills in relation to social, vocational, and educational concerns.

Compatible Learning Style Elements:

Emotional elements--accommodates varying degrees of motivation, persistence, and structure
Sociological elements--varied preferences for self, adult, peers
Physical elements--auditory, visual, tactual, kinesthetic

Counseling Intervention: In career education classes develop contract activity packages that accommodate a wide variety of learning styles. For example, in learning about colleges, utilize computer packages, interviews with college personnel, and profile data in order to gather and process information.

To illustrate the application of the learning style approach in counseling, a capsule case study is provided of Tom Adams, an 11th grade student, 16 years of age. His Learning Style Inventory results are shown in Table 5. Tom's scholastic achievement has been sporadic with identifiable patterns of low performance in verbal usage and reading areas, resulting in poor grades in social studies, English, and speech, and high achievement in mathematics and science. His parents are divorced and Tom works at a fast-food chain 20 hours weekly to help with family finances. His older brother terminated school in the 11th grade and is employed as a mechanic in a local gas station. Tom has indicated to his counselor in previous sessions that he has thought about leaving school to find full-time employment, but he likes some classes and generally sees value in obtaining a high school diploma. Tom is well-liked by his peers and is highly personable and attractive. Tom's counselor administered the Learning Style Inventory and decided to schedule a counseling session with him to interpret the results and discuss the implications of his learning style pattern. Excerpts from this counseling session are given below.

Counselor: It's good to see you, Tom. How have things been going for you these past few weeks in school and at home?

Tom: I'm hanging in there. I've been real busy with the job, school, and the computer club. If I didn't have to work, I'd spend more time with Mr. Medici after school. He's gotten me into computer programming and I've developed some really neat software packages that he uses in some of his general math classes.

Counselor: You sound really enthused about your work in computers and you seem to have tied that in nicely with your interest in math. If only there were more hours in your day!

Tom: Yeah, but I waste a lot of time too. On weekends I sleep til noon because I usually stay up real late on nights that I don't have school the next day.

Counselor: You're very much a night person. I discovered that when I looked over your Learning Style Inventory results. One of the things that we planned to talk about today was what those results mean in terms of how you learn best.

Tom: Okay. I'm ready to look at that.

Counselor: (Using the LSI profile in Table 5.) Let's focus on your strong preferences in learning--the low areas on the left and the high areas on the right. In terms of environmental stimuli, you have strong preferences for sound while learning, a warm temperature, and informal design.

Tom: That sounds pretty much on target. I study with the radio on--I do some of my best thinking like that--it helps me concentrate better. I've always liked warmth--summers are my favorite time and winters are okay if it's warm inside. What does informal design mean?

Counselor: It's the opposite of formal design! Seriously, it means that you avoid studying or learning at a desk and chair and, if given a choice, you prefer to work in a lounge chair, on a carpeted area, or even reading in bed.

Tom: Too bad I can't do that in school. Classrooms are a drag with all those hard desks and chairs. Your office is pretty neat, though. I like the whole set-up here.

Counselor: Most of the classrooms are pretty formal. I've been working with some teachers--your social studies teacher, for instance--to redesign some of the rooms. Mrs. O'Keefe does a lot of group work in social studies, and we're working on setting aside some areas of that classroom for small, informal group work and independent study.

Tom: That's neat. We could do with more changes around here!

Counselor: Okay. Let's look at the next general areas--emotional and sociological. You have no strong preferences in these areas, Tom, which means that you're pretty flexible in terms of requiring moderate amounts of structure for learning and being average in terms of motivation, persistence, and responsibility. You seem to be able to learn equally effectively by yourself, with peers in groups, or with adults.

Tom: That's good that I'm average in some things.

Counselor: There's no "right" or "wrong" way in any of this, Tom. It doesn't matter in terms of how well you learn whether you're low, average, or high in any of these areas. What is important is that you understand your learning style preferences and then try to accommodate those preferences.

Tom: I get it. It's not like a math test where your score is based on "right" answers.

Counselor: Exactly. Moving on to the physical stimuli, you work best in the evening, as we noted before. You are principally an auditory learner and you require intake while learning.

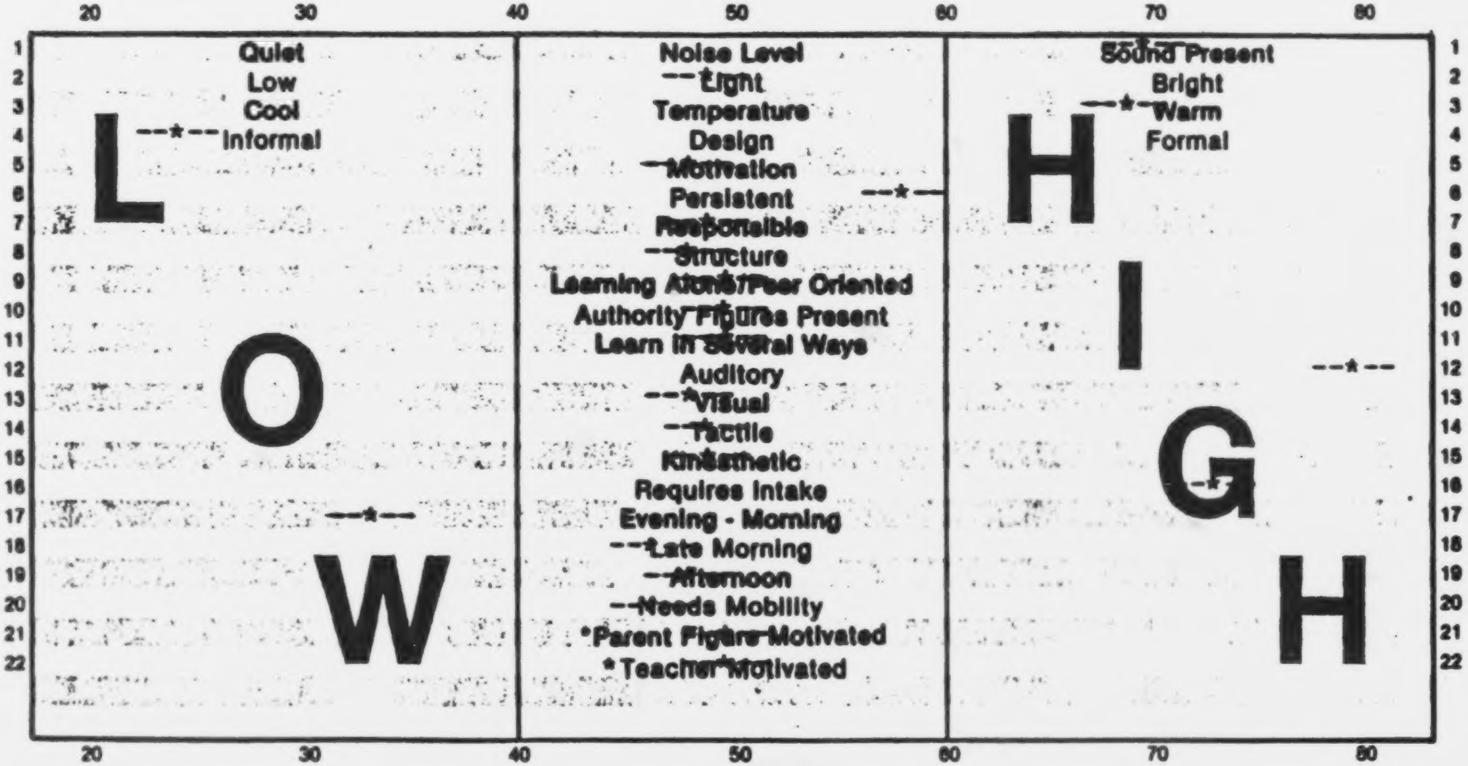
Table 5
Learning Style Inventory of Tom Adams

Name:
Sex: M
Year in School: 11
Date of Birth: 69 / 09 Yr./Mo.
I.D. No.:

Group Identification:
Special Code:
Date: 08-11-1985
Group No.: 999

PREFERENCE SUMMARY

Raw Score	Standard Score				
25	70	1	Quiet	Noise Level	Sound Present
12	49	2	Low	Light	Bright
23	69	3	Cool	Temperature	Warm
4	25	4	Informal	Design	Formal
24	48	5		Motivation	
15	58	6		Persistent	
12	49	7		Responsible	
12	48	8		Structure	
24	50	9		Learning Alone/Peer Oriented	
12	50	10		Authority Figures Present	
12	50	11		Learn in Several Ways	
20	80	12		Auditory	
9	48	13		Visual	
15	49	14		Tactile	
21	49	15		Kinesthetic	
25	73	16		Requires Intake	
10	33	17		Evening - Morning	
12	47	18		Late Morning	
15	48	19		Afternoon	
12	47	20		Needs Mobility	
12	50	21		*Parent Figure Motivated	
15	50	22		*Teacher Motivated	



CONSISTENCY: 88

PROFILE NO.: 4

Tom: Yeah. Too bad they don't have night school here—ha! Seriously, I do my assignments after I get home from McDonald's—my head's clearer then and I can breeze right along. I know I'm auditory—I remember conversations almost by heart. I'm also good at remembering what's said in class and how it's said. What does the "intake" thing mean?

Counselor: It means that you probably like to snack while you're learning--you may take frequent breaks to go out and raid the refrigerator.

Tom: That's the first thing I do before I begin anything! I guess it helps me to settle down—kind of a ritual for me.

Counselor: Like the informal design, the intake requirement is sort of difficult to accommodate in school. Teachers sometimes get upset with the rattle of candy bar wrappers or the sound of gum chewing, but if you're discreet you can probably work that out.

Tom: Exactly. The name of the game is "Don't get caught." Can't you see me saying in Jonesy's class, "I need a joint to get me through this!"

Counselor: I know you're too smart for the drug scene, Tom. Getting back to your learning style requirements, it sounds like you're accommodating your preferences for learning pretty well at home. We might work out more accommodations here at school. Even in terms of course scheduling, it would make sense to schedule your difficult subjects, like English and social studies, in the afternoon when you're more alert, and leave the morning open for your electives.

As indicated in this counseling session, accommodating learning style preferences within the classroom can result from counselor and teacher consultation on each of the learning style elements. In terms of counseling, Tom's preference for auditory modalities, together with his moderate need for structure, suggests that a wide range of traditional, talking-through counseling approaches can be used, including reality therapy, client-centered, cognitive, Adlerian, behavioral, and transactional analysis.

For other adolescent students, whose preferences are not auditory, a variety of interventions that accommodate visual, tactual, and kinesthetic preferences are outlined in Table 6. Additionally, techniques described in Table 4, such as art therapy, bibliotherapy, and psychodrama, can be adapted to an adolescent level.

Table 6

Secondary School Counseling Techniques and Compatible Learning Style Preference Patterns

Techniques	Description	Learning Style Characteristics
Systematic Desensitization	An anxiety-reduction strategy involving: Verbal set (overview of technique). Identification of emotion-provoking situations. Hierarchy construction. Coping responses. Imagery assessment. Scene presentation. Homework and follow-up.	Visual perception; analytical and deductive approach (left hemisphere).
Guided Imagery	The counselor asks counselees to relax, close their eyes, and create a mental picture of an event or experience. Clients share the imagery in an individual or group counseling session.	Visual, auditory perceptual preferences; right brain dominant; average need for structure; varied sociological preferences.
Autobiographical Writing	The student writes an autobiography, describing values, interests, goals, family, past events, etc., and shares it in a counseling session.	Tactual and auditory preferences; high structure; high responsibility.
Systematic Relaxation	In an individual or group counseling setting, the counselor directs students to tense and then relax all parts of the body progressively. Students are encouraged to apply this strategy in situations in which they feel anxious, tense, or nervous.	Accommodates either peer or adult sociological preferences; kinesthetic perceptual strength; need for high structure.

Techniques	Description	Learning Style Characteristics
Metaphor, Parable, Allegory	Figurative language in which concepts are described symbolically or through stories or analogies.	Visual orientation; right brain dominant; global approach. May be utilized in individual, peer, or group counseling.
Free Writing	Counselees are instructed: "Conditions of tension, confusion, hostility, joy or excitement can be released through writing your feelings and thoughts freely. Keep a log of your writings to share in individual or group counseling."	Tactual perceptual strength; highly motivated and persistent; minimum need for structure.

Providing for the Learning Style Preferences of Special Populations

Although the learning style model is based on the premise of individual differences, research indicates that various special groups have a core of learning style preferences that distinguishes them from others. Research findings for the gifted, physically disabled, and school dropouts indicate a clustering of special characteristics.

Gifted Students

Selected learning style elements discriminate between gifted and non-gifted students. Among elementary school youth, Kaley (1977) found that learning style is a statistically stronger and more reliable predictor of reading achievement than IQ. The higher a child's reading level, the more field independence is evident; the lower the reading level, the more field dependence is present. Field independent persons tend to pursue active, participant approaches to learning, while field dependent persons more often use spectator approaches. Hudes, Saladino and Siegler (1977) found significant relationships among giftedness, achievement, and self-concept in third grade students. Students with high self-concept tended to be high achievers and gifted, while those with low self-concept tended to be low achievers and non-gifted.

A number of researchers investigated the perceptual strengths of gifted youth. Barbe and Milone (1982) found that gifted children had well-integrated perceptual strengths, meaning that they can learn through varied learning channels, including auditory, visual, tactile, and kinesthetic. There is some evidence that perceptual preferences are developmentally related. Dunn and Price (1980) found that gifted elementary school children had high tactile and kinesthetic preferences but low auditory preference. Griggs and Price (1980b) found that gifted junior high school students had strong visual, tactile, and kinesthetic preferences and low auditory preferences. It would appear that tactile and kinesthetic modalities develop initially, followed by visual modalities (developed during puberty), and lastly auditory modalities (developed during adolescence or adulthood) (Keefe, 1979; Dunn, Carbo, & Burton, 1981).

The preference for high versus low structure is another element which discriminates between gifted and non-gifted youth. Dunn and Price (1980) found that gifted children preferred low structure and flexibility in learning. Lyne (1979) studied adults and college students and found a relationship between cognitive development and structure. Adults at the lower stages of cognitive development preferred a highly structured learning format, while those at the higher stages of cognitive development preferred more flexibility and diversity in learning.

In addition to the learning style preferences discussed previously, Dunn and Price (1980) found that gifted elementary school children tended to prefer a formal design and were highly persistent but low in responsibility or conformity. Griggs and Price (1980b) found that gifted junior high school students were highly persistent, more self-motivated than teacher-motivated, preferred a quiet learning environment, and preferred to learn alone rather than with peers. Perrin (1984) also reported the strong learning alone preferences of young gifted children but found that, when grouped with other gifted youngsters, who apparently were their true peers, gifted youth achieved significantly higher scores on rote memory and problem-solving tasks.

To summarize, the research reveals a pattern of core learning style preferences among gifted students, including: (a) independent (self) learners; (b) internally controlled or field independent; (c) persistent; (d) perceptually strong; (e) nonconforming; and (f) highly self-motivated.

Table 7 summarizes the Learning Style Inventory results for George Edwards. He is a sixth grade student with an overall IQ of 136 on the Stanford-Binet. There are seven elements on the LSI that discriminate significantly in terms of his learning style preferences.

He is low in the area of responsibility, which is highly correlated with nonconformity. Generally, gifted students tend toward nonconformity in terms of thought, attitude, and behavior. Educators need to recognize and support this uniqueness, which can take many forms.

George is perceptually strong; hence a broad range of counseling techniques can be utilized, including traditional auditory approaches, visual approaches such as reading and imagery, and tactile/kinesthetic approaches such as psychodrama. He prefers sound while learning, suggesting that background music may enhance the counseling process. His time of day preference is morning, and he is a self-learner, who prefers large doses of independent study.

Table 7
Learning Style Inventory of George Edwards

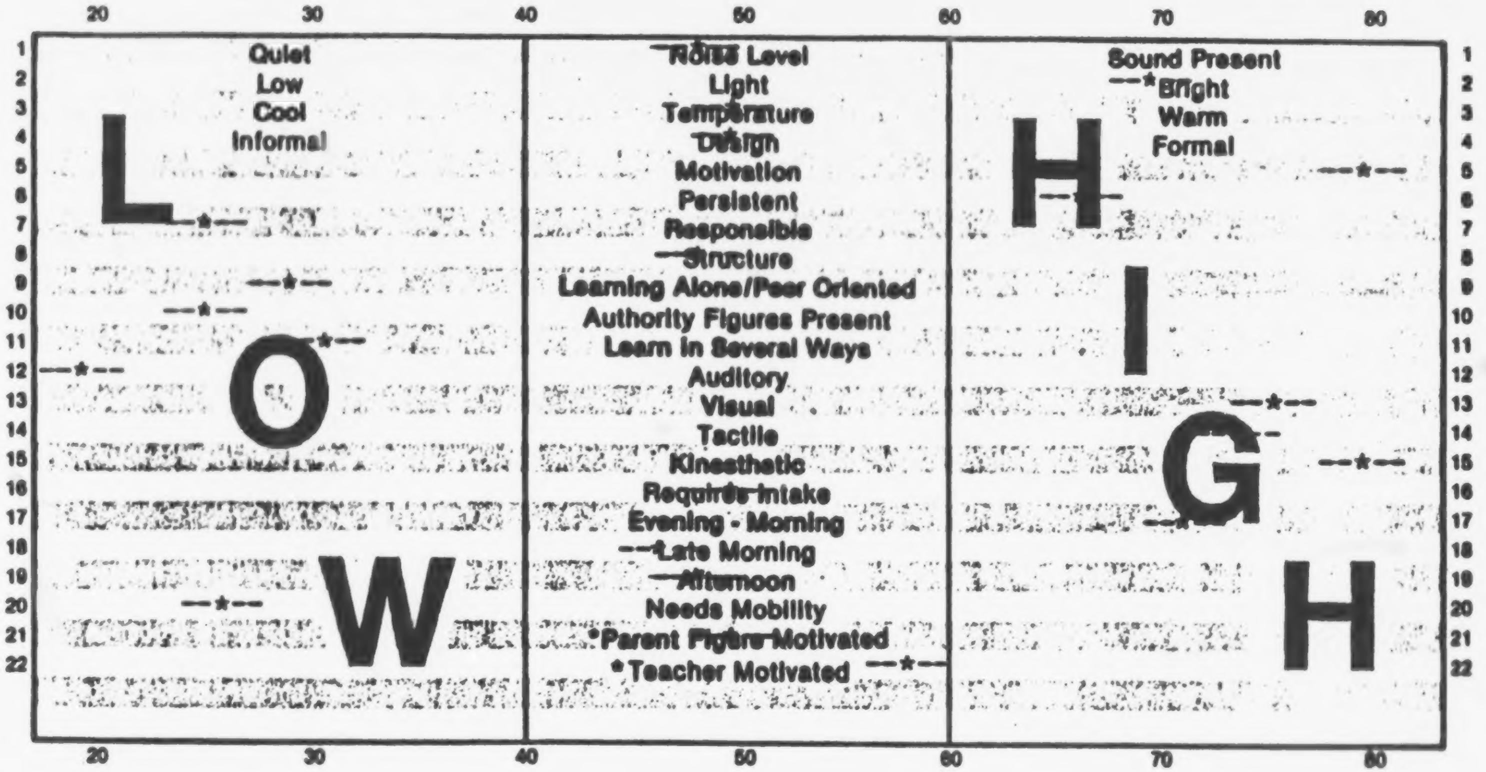
Name: **Sex:** **Year in School:** 6 **Date of Birth:** 74 / 02 Yr./Mo. **I.D. No.:**

Group Identification: **Special Code:** **Date:** 08-11-1985 **Group No.:** 999

PREFERENCE SUMMARY

Raw Score	Standard Score
15	48
20	70
15	50
12	50
40	80
17	67
4	26
12	48
12	30
4.	26
6	31
4	20
15	76
25	74
35	80
15	50
30	72
12	47
15	48
4	27
12	50
17	58

45



CONSISTENCY: 100

BEST COPY AVAILABLE

PROFILE NO.: 2

Physically Disabled Students

The Learning Style Inventory was administered to 86 physically disabled students at the Human Resources Center in Albertson, New York. The group included 46 males (53 percent) and 40 females (47 percent), enrolled in grades seven through 12, with an age range of 13 to 21 years. Their physical disabilities included 24 spina bifida, 22 cerebral palsy, ten muscular dystrophy, five spina bifida manifesta, four DYS autonomia, three osteogenesis imperfecta, and 18 unclassified.

The following preference patterns were identified in the group overall:

Adult-motivated	88 percent
Teacher-motivated	64 percent
Highly motivated	57 percent

Overall, the group rejected the late morning as a time preference (84 percent); indicated a low need for mobility (41 percent); had no requirement for intake while learning (42 percent); and generally identified auditory-visual perceptual strengths (50 percent) in comparison to tactile-kinesthetic perceptual strengths (36 percent). These findings are contradictory to LSI results of other adolescents, who generally indicate strong peer preferences (as opposed to adult or teacher preferences), tactile-kinesthetic perceptual strengths, and late morning and afternoon learning preferences.

Inter-group student preferences are summarized as follows:

1. Spina bifida manifesta preferred a high noise level (60 percent); formal design (60 percent); exhibited high motivation (60 percent); and were adult-motivated (100 percent).
2. Osteogenesis imperfecta were responsible (67 percent); preferred to work in the afternoon (67 percent); were teacher-motivated (100 percent); rejected kinesthetic modalities (67 percent); and rejected late morning as a learning preference (67 percent).
3. DYS autonomia had a preference for strong light (75 percent); demonstrated persistence (75 percent); were visually oriented (50 percent); required intake (50 percent); were adult-motivated (100 percent) and teacher-motivated (75 percent); and rejected late morning as a time preference (100 percent).
4. Cerebral palsy were highly motivated (68 percent); teacher-motivated (68 percent); and rejected mobility (54 percent).

5. Spina bifida were adult-motivated (96 percent); teacher-motivated (75 percent); rejected late morning (92 percent) and mobility (50 percent) as learning preferences.
6. Muscular dystrophy preferred formal design (60 percent); rejected kinesthetic modalities (60 percent) and late morning learning (90 percent).

Caution should be used in generalizing these results, because some of the physically disabled groups had numbers less than ten. However, the findings overall suggest that the learning style preferences of physically disabled students differ significantly from the preferences of other adolescents on important elements.

Table 8 summarizes the learning style results of Susan King. She is 14 years of age, enrolled in the eighth grade, and has cerebral palsy. There are seven important elements that define her learning style.

She has a high level of motivation, which is enhanced through teacher mediation. Susan needs consistent and periodic reinforcement during learning and counseling and she would respond well to behavioral counseling, using contracting, token systems and external monitoring. She requires a well-lighted environment, formal design, and her peak period for counseling is afternoon. Due to her physical disability, she rejects kinesthetic counseling approaches or approaches that involve mobility.

School Dropouts

Most school districts throughout the nation have focused on dropouts at one time or another and devised interventions for responding to the special needs of this population. Dropping out of school is a complex decision related to a number of familial, personal, and socioeconomic factors that operate independently from learning style characteristics. However, the Edmonds School District dropout study (1983) isolated learning style characteristics that are distinguishable in this population.

From the 345 dropouts contacted during 1982-83, 103 (30 percent) former students were accessible for interviewing and testing. For comparison purposes, 213 students were randomly selected from each of the five high schools in the district and these 213 students were termed "traditional," because they were enrolled in traditional or comprehensive high schools. Additionally, all students in the alternative program (N=214) were included in the study. "Alternative students" received additional counseling, smaller classes, and individualized programs in

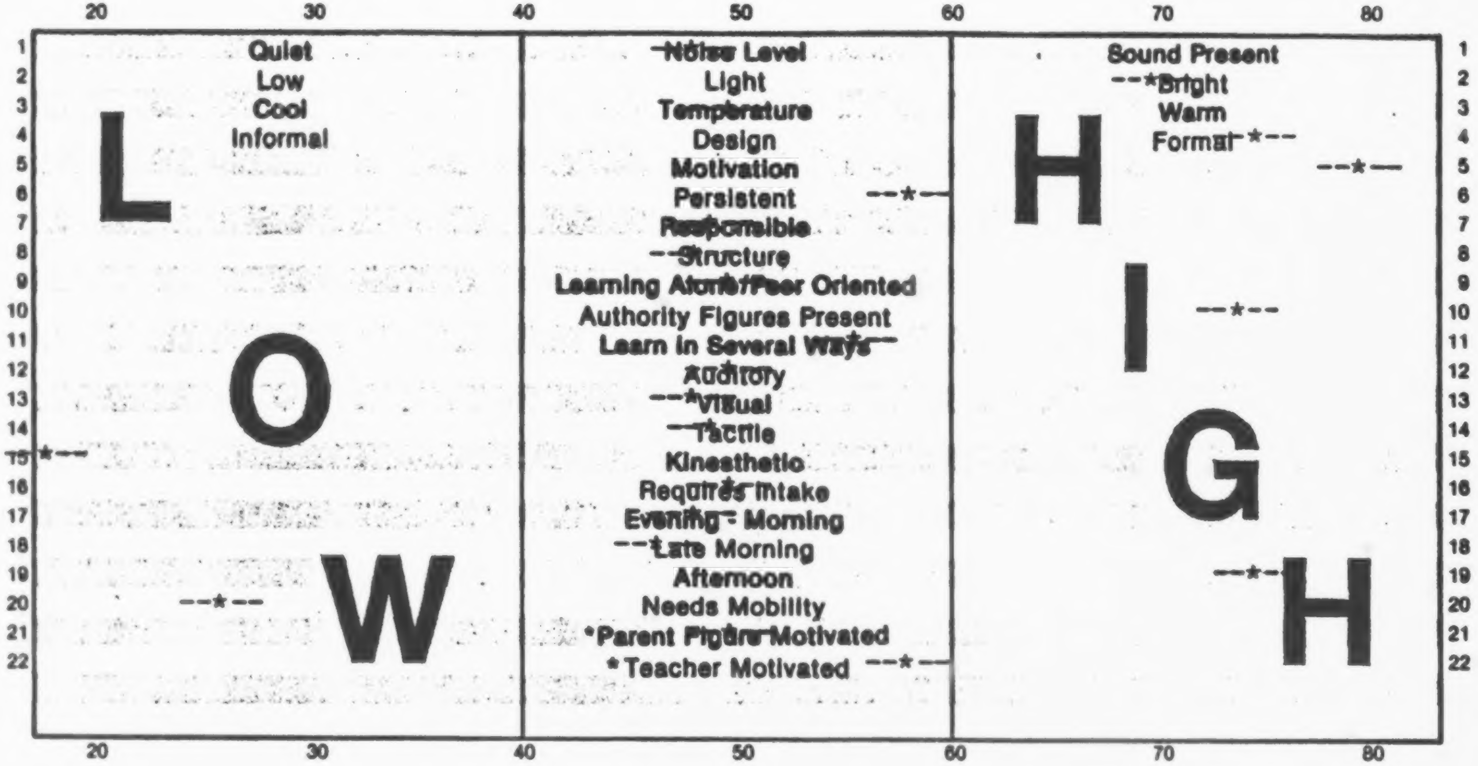
Table 8
Learning Style Inventory of Susan King

Name: **Sex:** **Year in School:** 8 **Date of Birth:** 71 / 05 (Yr./Mo.) **I.D. No.:**

Group Identification: **Special Code:** **Date:** 08-11-1985 **Group No.:** 999

PREFERENCE SUMMARY

Raw Score	Standard Score		Low		High
15	48	1	Quiet	Noise Level	Sound Present
20	70	2	Low	Light	Bright
15	50	3	Cool	Temperature	Warm
20	75	4	Informal	Design	Formal
40	80	5		Motivation	
15	58	6		Persistent	
12	49	7		Responsible	
12	48	8		Structure	
24	50	9		Learning Alone/Peer Oriented	
20	74	10		Authority Figures Present	
14	56	11		Learn in Several Ways	
12	50	12		Auditory	
9	48	13		Visual	
15	49	14		Tactile	
7	0	15		Kinesthetic	
15	50	16		Requires Intake	
18	48	17		Evening - Morning	
12	47	18		Late Morning	
25	75	19		Afternoon	
4	27	20		Needs Mobility	
12	50	21		*Parent Figure Motivated	
17	58	22		*Teacher Motivated	



CONSISTENCY: 100

PROFILE NO.: 1

comparison to "traditional students," because they were high risk students with special needs. Therefore, the total number of subjects was 530, including 103 dropouts, 213 traditional, and 214 alternative students.

Discriminate analysis identified 17 LSI variables that discriminated between the different pairs of students at a level of .001 significance. The learning style preferences of the dropout sample studied revealed the following characteristics:

- Motivated to learn.
- Strongly peer- and teacher-oriented but also preferred variety in the learning environment.
- Required mobility and were unable to sit for long periods of time.
- Easily bored by daily routines and highly structured learning requirements.
- Evening was the optimal time period of learning and there was difficulty in functioning well before noon.
- Tactual, kinesthetic, and auditory perception modalities were significantly stronger than visual perception.

School counselors are key people in identifying potential dropouts and working with parents, teachers, and administrators to develop strategies, policies, and interventions which are responsive to the characteristics and needs of this special population. Counselors should have a thorough understanding of the reasons for leaving school, so they can influence directly the personal, familial, and educational factors associated with dropping out.

Personal factors. Early identification of potential dropouts is critical so that interventions can be devised which reverse the cumulative effects of low self-esteem, feelings of alienation, and low aspirational level. Counselors can work with classroom teachers in a consultative role to assist in assessing students' ability and achievement levels and devising individual educational plans (IEP's) to help youth achieve and succeed. A major component of the IEP should be counseling, which is directed at exploring personal goals, aspirations, and efficacy of the student. Students identified as high risk should be flagged at the transitional grades, and an effective articulation plan should be devised to provide a support system to these students during their transition between schools.

Familial factors. In the case of high risk students there is a need for improved communication between the home and school. The counselor needs to influence the parental value system away from apathy and toward strong support for education. Through group work with students and parents the counselor can assist families in crisis--those experiencing unemployment, divorce, or violence. Counselors need to help establish support groups within the school that recognize the needs of students in crisis and provide them with coping strategies.

Educational factors. The counselor needs to be cognizant of the finding that students prefer to learn in different ways. The Edmonds School District study revealed that dropout students are distinguishable as a group from traditional and alternative students on some learning style variables. The learning style preferences of students need to be diagnosed, and provisions for these learning preferences need to be made within the classroom. Student learning preferences should be congruent with the strategies and interventions utilized by the counselor and teacher. Case conferences, which focus on the individual learning style preferences of high risk students, can be scheduled with selected teachers, administrators, and the counselor to review these preferences and plan learning strategies that are compatible with these interventions. For example, the finding that dropout students preferred to learn with peers rather than alone indicates that small group projects with interdependent tasks are preferable to individual homework assignments.

Counselors should be aware of the need to make the educational system responsive to the high risk student. Almost half of the students who were interviewed in the Edmonds School project had dropped out of school two or more times. Each time they re-enrolled with the intent of trying harder to succeed but encountered the same problems and didn't know how to resolve them. Counselors should establish re-entry groups, which focus on helping students identify strategies for coping with and overcoming problems associated with the traditional educational system. The counselor's energies need to be directed toward the long term goal of developing a more humanistic, individualized, and flexible educational climate, while assisting high risk students with their immediate problems.

In summary, the high dropout rate needs to be reduced through the combined efforts of the home, school, and community. Attention to learning style factors seems to be one important area upon which to focus these efforts. The ability to attract and hold teenagers in high school through graduation is critical to a nation committed to equal educational opportunity, full employment, and individual fulfillment (Bell, 1984).

Lastly, in addressing the needs of special populations it is important to recognize that assessment should extend beyond group characteristics, because within each group there are broad differences as well as similarities in terms of learning style preferences.

Description of School Counseling Programs That Use Learning Style Preferences in Counseling

A series of vignettes are presented in this section to describe how counselors utilize learning styles in individual counseling, career education, freshman orientation, course scheduling, study skills, teacher inservice, and program development with underachievers.

Dennis Bryson, a counselor at Columbia High School in Troutdale, Oregon, describes how he uses learning styles in individual counseling as follows:

> After working as a counselor in a high school that emphasizes learning styles, I have found that there are several ways that learning styles can be utilized by the counselors to help students who are having difficulty in the classroom.
>
> As counselors are aware, one of the initial reactions of a student who is having classroom problems is to blame the teacher. Learning styles allow the counselor to put the problem in a broader perspective and to help the students to accept the responsibility for their role as learners by focusing on factors other than personality issues that contribute to the problem.
>
> Another factor that can lead to classroom problems is low self-esteem. Learning styles allow the students to see themselves in more than one perspective. For example, if a student is primarily a visual learner, but is in a math class in which the teacher relies on the lecture method with no visual aids, then the counselor can help the student to understand why s/he is experiencing difficulty. Together they can explore ways the student can use individual strengths to adapt teaching techniques. In this way learning styles can help the student develop an appreciation of his/her own learning style and uniqueness as an individual.
>
> As counselors we are often trying to aid students who are dealing with problems in the classroom. By using learning styles, I have found that I can help the student to see the problem in an objective manner, to accept more responsibility for learning, and to gain an appreciation for personal strengths. The use of learning styles has proved to be a positive tool in problem solving.

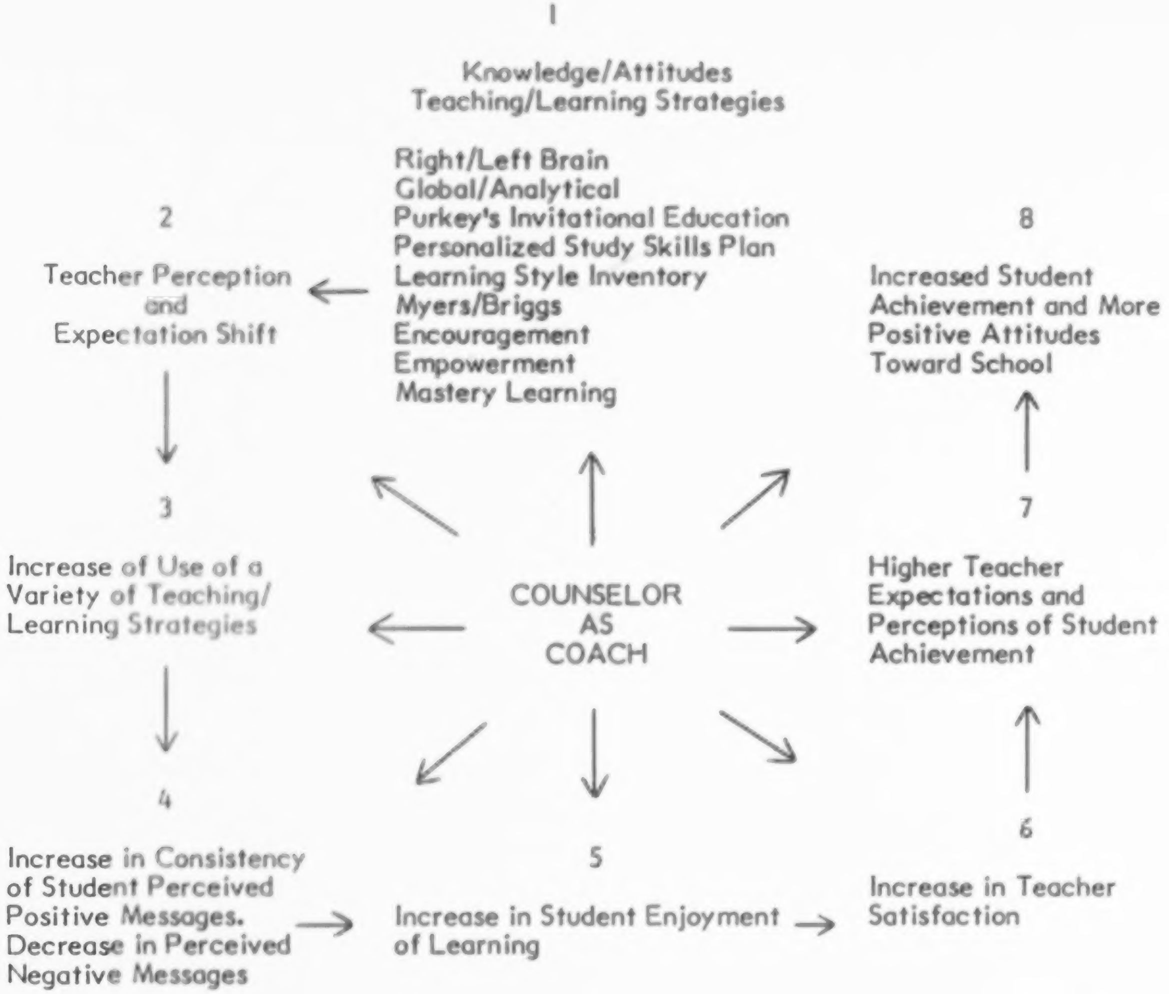
Caryl Barbknecht, a counselor at Rich South High School in Richton Park, Illinois, has developed an Individual School and Career Program (ISCP) to provide each student with a personal educational-vocational plan designed to respond to major interests, aptitudes, and aspirations. Published in an attractive, well-designed manual entitled Horizon, the ISCP suggests possible future directions for adolescents through activities and information outlined in a fairly structured, four-year counseling program. An integral component of the ISCP is a learning style inventory, which enables both students and their teachers to accommodate individual style preferences.

In a freshman advisory program in the Highland Park High Schools in Illinois, the counselors have developed a guidance curriculum that includes the interpretation of the LSI for students to help them understand how they learn best. With this information, students are encouraged to do their homework in accordance with their learning styles and to understand, possibly, why they are experiencing difficulties in certain classes. In creating course schedules, counselors attempt to schedule students' most difficult subjects during their preferred time of day.

The Maryland State Department of Education provides a teacher mini-grant program that compensates teachers with a small stipend to encourage experimentation in classroom strategies to increase student achievement and decrease classroom disruptions due to behavior problems. The stipend is intended to acknowledge the amount of extra time required for the teacher's classroom preparations.

Charlotte Saji, a counselor at Atholton High School in Columbia, Maryland, has implemented the mini-grant program, as summarized in the following diagram:

Increasing Student Achievement Using Teaching/Learning Styles or Strategies


1
Knowledge/Attitudes
Teaching/Learning Strategies
Right/Left Brain
Global/Analytical
Purkey's Invitational Education
Personalized Study Skills Plan
Learning Style Inventory
Myers/Briggs
Encouragement
Empowerment
Mastery Learning
2
Teacher Perception and Expectation Shift
3
Increase of Use of a Variety of Teaching/ Learning Strategies
4
Increase in Consistency of Student Perceived Positive Messages. Decrease in Perceived Negative Messages
5
Increase in Student Enjoyment of Learning
6
Increase in Teacher Satisfaction
7
Higher Teacher Expectations and Perceptions of Student Achievement
8
Increased Student Achievement and More Positive Attitudes Toward School
COUNSELOR AS COACH

The counselor met with eight high school teachers, who expressed an interest in experimenting with teaching and learning strategies within the classroom. Following teacher inservice in the area of learning styles and complementary teaching strategies, each teacher selected specific units of study and developed multisensory instructional materials and a variety of learning activities to achieve learning objectives. In most cases the counselor administered and interpreted the Learning Style Inventory and other instruments in the classroom to confirm the appropriateness of various strategies.

Strategies were monitored, with the counselor consulting with teachers periodically. Teachers kept journals of student changes in learning patterns that were used for discussion in counselor conferences. Ms. Saji cites the following results as reported by teachers:

- Improved academic achievement.
- Increased creativity as an end-of-year review was led by students.
- Improved grades as a result of alternative testing procedures.
- Decreased classroom disruptions.
- Improved classroom climate.

Luanne Reabe, a secondary school counselor in Whiteland, Indiana, has developed a program for underachieving adolescents entitled, Progress with Learning Styles (PLUS). The program was designed to assist 25 students on a daily basis. Students were selected for PLUS by counselors and teachers, based on the following criteria:

- Average scholastic ability.
- Failing two or more subjects.
- Enrolled in ninth or tenth grade.
- Expressed interest of student and parents.

Twenty-five students were recruited for this program in 1983-84. Five students per period are assigned to a learning center, which is equipped with a Commodore 64 computer and software, tape recorders and earphones, tapes, a small library, and materials to create tactual-kinesthetic learning aids. The room design has formal and informal areas, bright and dim sections, private work areas and group work areas, and students are allowed to snack. Students are counseled as to their learning style preferences and the learning center provides a range of environmental, physical, sociological and emotional stimuli to accommodate a range of preferences. Ms. Reabe reports that at the end of the academic year, overall student grades improved in 67 percent of their classes. The coordinator of the learning center states:

> Teaching has never been as challenging or as rewarding for me. PLUS involves working with 30 different teachers, 25 students, and approximately 20 subjects every day. Sometimes it is frustrating and difficult to keep up with the many tactual-kinesthetic materials which need to be developed for each subject. The rewards are great, however, when students finally realize that they are not dumb.

In addition to the programs described here, Chapter III will outline group counseling programs using learning styles at various levels.

CHAPTER III

CONSULTING WITH CLASSROOM TEACHERS AND PARENTS REGARDING LEARNING STYLES

There is increasing emphasis on the role of the school counselor as a consultant to teachers, administrators, and parents. The importance of this role has been highlighted by a section on the counselor's consulting role in the Ethical Standards of the American Association for Counseling and Development.

School counselors need to become skilled in consultation models and techniques for a variety of reasons. The counselor is perceived by educational professionals as particularly knowledgeable in learning theory, as one who understands the learning process, how it can be enhanced within the classroom, and how learning and achievement impact student attitudes toward self and toward school in general. The counselor is committed to humanizing educational systems, enhancing the school climate, and providing for individual differences to develop the potential and uniqueness of each child or adolescent. Counselors realize that these educational goals are achieved through a team effort, with the school, home, and community working together. Administrators and curriculum specialists look to counselors because they are knowledgeable concerning students' and parents' complaints about classes, teaching methods, course requirements, and grades. The experienced counselor is able to identify patterns in these complaints; e.g., teaching methods that are rigid, monotonous or unchallenging, or teaching styles that accommodate a limited number of learning styles, such as using lecture and discussion exclusively. Inexperienced teachers, in particular, discuss students' behavior and achievement profiles with counselors in an attempt to better understand students' needs and strengths in order to facilitate learning.

Explaining Individual Learning Styles

There is ample evidence that we tend to be aware of our own learning style preferences and generalize these preferences to others. Teachers who are auditorily strong use auditory methods predominantly in the classroom; those who are analytic and use inductive reasoning in their approach to problem solving employ these strategies with students; teachers who equate quiet with learning impose those restrictions in the classroom and so on. If teachers move to the next step of recognizing different styles of learning in their students, it is frequently frustrating to develop ways to accommodate those differences. As Henry Higgins exclaimed in My Fair Lady, "Why can't everyone, be like me!"

An effective method of helping educators to recognize the range of individual differences is to administer the Productivity Environmental Preference Scale (the adult learning style instrument) to the entire staff and faculty within a school or school district. When the scale is interpreted in a large group, educators recognize the vast range of individual preferences within the group and come to the realization that these differences need to be accommodated.

The next step is to encourage teachers to assess their students. For very young children in kindergarten, first, or second grade the Primary Version of The Learning Style Inventory by Perrin (1981) should be used, and in grades three through 12 the Learning Style Inventory. Students should understand before the administration of these instruments that there are no "right" or "wrong" answers, and that individual responses will vary according to individual requirements. After the scale has been scored, use Tables 1 and 2 to interpret the findings. Each teacher should then develop group profiles for each of the learning style elements, listing students whose preferences and rejections are above standard scores of 60 or below 40.

Accommodating Learning Style Preferences Within the Classroom

Classrooms and curriculum strategies need to be redesigned to accommodate the variety of learning style preferences evidenced among a group of 25-35 individuals. Changes that are designed to accommodate environmental, emotional, sociological, physical, and psychological needs are discussed in this section.

Environmental

The classroom can be redesigned to include a variety of study areas, including conventional seating for those needing formal design and informal carpeted areas with easy chairs and/or large pillows. Rules of conduct need to be reviewed with students so that the informal area is not synonymous with "fun and games." Students who require sound should be encouraged to pursue solitary learning activities while listening to music using earphones. Others who need quiet should be located away from group interaction with room dividers or bookcases used to define areas. During periods of group work, students who prefer to work independently and quietly should be encouraged to use earplugs to enhance concentration. Light requirements can be accommodated by placing students by windows or in areas of the room where the lighting has been modified with dim lights. Temperature needs are probably best accommodated by suitable clothing; students who prefer a cool environment should dress in light clothing and sit away from drafts or windows, while those who prefer a warm environment should keep a sweater at school and sit near radiators.

Emotional

Both instructional approaches and assignments should be varied in order to accommodate alternative learning routes. For example, students who are highly motivated and persistent can use Contract Activity Packages (CAPs) to accommodate their learning styles. The basic principles of CAPs include: (1) simply stated objectives that itemize exactly what the student is required to learn; (2) multisensory resources that teach the information which the objectives indicate must be mastered; (3) a series of activities through which the information that has been mastered is used in a creative way; (4) a series of alternative ways in which creative activities developed by one student may be shared with one or more classmates; (5) at least three small group techniques; and (6) a pre-test, a self-test, and a post-test (Dunn & Dunn, 1978). The Learning Style Network, co-sponsored by St. John's University and the National Association of Secondary School Principals, has developed a broad range of CAPs which are suitable for a variety of content areas across all grades. Creative teachers can develop their own sets of CAPs over time. CAPs can be designed to accommodate a broad range of emotional preferences; for example, reading the CAP onto a cassette can be used with students who lack motivation and persistence. Students with a high need for structure will respond better if learning tasks and assignments are concrete, carefully delineated, and unambiguous in their guidelines. Those who prefer low structure should be encouraged to pursue learning objectives in a variety of ways and submit assignments that result from creative, divergent, and open-ended approaches.

Sociological

Students should be assigned to instructional tasks by themselves, in pairs, in small groups, with the teacher, and in varied patterns, according to how they learn best. Frequently, teachers assume that individuals learn best when presented consistently with whole-group instruction. Observation of any group of students during teacher lectures or demonstrations will reveal that some are attentive, others are doodling and seemingly listening with the third ear, and still others are tuned-out completely and engaged in some ancillary activity. Again, the Contract Activity Packages provide for a broad range of sociological preferences in the pursuit of learning objectives, with some designed for individual mastery, others for group activities, and yet others for teacher input and monitoring.

Physical

An effective way to accommodate a variety of perceptual strengths is through the use of multisensory instructional packages, which are self-contained teaching units with the following basic elements in common: (1) each package focuses on a single concept; (2) at least four senses are used to learn the contents; (3) feedback and evaluation are built in; and (4) learning is private and aimed at individual learning styles (Dunn & Dunn, 1978). Intake needs can be met by permitting students to snack on nutritional foods while working, such as raw fruits or vegetables. At the secondary school level, students can be scheduled so that their most difficult subjects are taught during their time-of-day peaks. Lastly, mobility needs can be accommodated through redesigning the classroom into a variety of study areas, which lend themselves to selective movement.

Psychological

Individuals with a right hemisphere cognitive style tend to express their thoughts internally in pictorial form, prefer global approaches, and use deductive reasoning. Those students with a left hemisphere cognitive style tend to express their internal thoughts abstractly, prefer analytic approaches, and use inductive reasoning (Zenhausern, 1982). Research indicates that cognitive "tempo" is related to hemisphericity: rights tend to be impulsive while lefts tend to be reflective. These findings have important implications in the classroom. It can be expected that the student who is right-dominant will prefer less structure and will be more impulsive, more likely to "act out," and more likely to be extroverted. Left-dominant individuals are frequently perceived as "ideal students," motivated, controlled, and verbally oriented. Teachers can accommodate the two cognitive styles by using both visual and auditory strategies and both deductive and inductive approaches in teaching the same concepts.

Finally, when teachers begin to implement learning style concepts within the classroom, counselors can lend support by offering to observe students in the classroom setting, counsel students regarding their perceptions of changes in the learning process, identify additional resources that can aid in implementing and evaluating the learning style approach, and incorporate this approach in their own work with students individually and in groups.

Arranging for Varied Sociological Patterns (K-12)

Frequently counselors operate under the assumption that all students are good candidates for individual counseling or group counseling or peer counseling. However, when students are asked to identify their preferences in these areas, they sometimes reject one or more of these modalities and strongly embrace other modalities. Thus it seems feasible to recognize these differences and provide for them within the classroom and within the counseling program.

Accommodating students with strong preferences for working and learning alone or independently should involve the use of counseling techniques that promote personal responsibility and independent action. Selected behavioral counseling techniques that are appropriate for these students include "homework" assignments, programmed materials for bibliocounseling, self-monitoring, self-reinforcement, and thought stopping.

Students who are strongly adult-oriented can be exposed to a broad variety of individual counseling approaches, which should be selected on the basis of other learning style element preferences as well. Such approaches might be cognitive counseling, gestalt therapy, behavioral counseling, transactional analysis, multimodal therapy, etc.

A variety of counseling strategies accommodate students who are both adult- and peer-oriented. Examples of these strategies, which are appropriate for preschool, elementary, and secondary school youth are developmental play, magic circle, and family sculpture, which are described below.

Developmental Play (K-1)

Play is an integral part of a young child's development and is inextricably related to social, physical, and intellectual development (Bagley, 1975). Developmental play enhances developmental and expressive communication through intense interaction between the child and significant adults. The focus is on helping the child establish a meaningful relationship with an adult partner. Used predominantly with four, five, and six year olds, developmental play involves six to eight children with individual adult partners and one group leader. The children meet weekly for approximately 15 weeks with the adults. The sessions last for 75 minutes and are organized into three parts: (1) "One-to-one child/adult play" in which body-contact games are played. An example is the "roll-me-out" game in which the adult pretends that the child's body is a piece of dough, which is rolled, shaped, and molded into workable, moving parts. The game is an excuse for touching, and for many children who have perhaps associated adult physical contact with fear, the positive closeness with an adult builds trust. (30 minutes.) (2) "Circle time" with the entire group in which the group leader helps the adults and children talk about their feelings and behaviors through structured activities, including getting-acquainted, warm-up activities, motor or body awareness activities, and guided fantasy activities. (30 minutes.) (3) "Juice time" for closure. (15 minutes.) (Burt & Myrick, 1980). The learning style elements that are compatible with the developmental play approach are as follows:

Perceptual strengths:	High kinesthetic and tactile needs.
Sociological elements:	High need for adult and peer involvement.
Emotional elements:	Moderate need for structure.

Magic Circle (K-6)

The magic circle is a classroom technique in which pupils and their teacher, frequently in consultation with the school counselor, create an accepting climate for sharing their thoughts and feelings, developing confidence, and learning to interact with each other effectively. The teacher and students form a circle, and the teacher leads the entire class in a nonjudgmental discussion about what is important and meaningful to them. The discussions are generally centered around the following: (1) social problem-solving, which deals with students' social behavior in school; (2) open-ended, which focuses on intellectually important topics; and (3) educational-diagnostic, which centers on how well the students understand the concepts of the curriculum. Such meetings should occur every day in kindergarten and the elementary school. A major goal is to demonstrate to children that the classroom can be a working, problem-solving unit and that each child has both individual and group responsibilities in the school. (Hansen, Warner, & Smith, 1980). In Schools Without Failure (1969), Glasser gives detailed descriptions of how to conduct classroom meetings, covering such topics as the circle arrangement, length of sessions, and methods of stimulating discussion. The learning style elements that are compatible with the magic circle approach are as follows:

Environmental elements:	Informal, casual, relaxed design.
Perceptual elements:	Auditory approach predominantly.
Psychological elements:	Global and analytic approaches are accommodated.
Sociological elements:	Varied use of adult and peer approaches.

Family Sculpture (7-12)

David Mendelowicz, a counselor at Sleepy Hollow High School in Tarrytown, New York, describes a strategy used in his "Concerned Persons Group" to assist adolescents who live in families in which one or both parents are chemically dependent.

One technique which has proven to be most useful in helping group members learn about their family structure and inter-dynamics is the family sculpture. This technique provides the individual and the group with a means of visually depicting relationships within the family.

A group member volunteers to "sculpt" his/her family by placing other group members (who in this exercise represent family members) in relation to each other in such a way as to create the volunteer's perception of how the family is organized. The volunteer manipulates the bodies, expressions, and distances between "family members" until satisfied that the finished sculpture does in fact represent the family.

Once completed, group members and the volunteer are encouraged to discuss how they felt about the exercise. Generally the group members who played a family member are asked how it felt, for instance, to be the alcoholic father, from whom other family members distanced themselves, or the enabling mother, who is in a "push/pull" conflict between her alcoholic husband and angered children. The volunteer generally feels a sense of relief for having described (via the sculpture) some important issues concerning the family dynamics and is able to gain important insights from group members about the individual roles and functions within the family. The learning style approaches that are compatible with the family sculpture technique include the following:

Sociological elements:	Varied use of peer and adult approaches.
Perceptual elements:	Accommodates a variety of perceptual strengths, including auditory, visual, and kinesthetic.

Accommodating a Variety of Perceptual Strengths (K-12)

As indicated earlier, a study of longitudinal data on learning styles reveals that perceptual strengths are related to development: that is, tactual and kinesthetic modalities develop first and are the primary strengths of pre-school and early elementary school youth, followed by the visual modality which becomes prominent during the fifth grade, and lastly the auditory modality, which is significantly stronger by the seventh grade.

However, counseling techniques and strategies tend to be predominantly "talking" or auditory approaches. Therefore, the challenge for school counselors, particularly elementary school counselors, is to develop counseling strategies that accommodate a variety of perceptual strengths. Examples of multisensory counseling techniques to be described include creative arts therapy, DUSO, charades, communication skills development, and career education exploration.

Creative Arts Therapy (K-3)

Creative arts therapy is a technique to help young children express themselves cognitively and affectively through creative materials (Nystul, 1978). The technique involves four stages, as follows: (1) "setting the stage," in which young children are encouraged to express themselves through a variety of play materials, including molding clay, paints, puppets, Bozo punching clowns; (2) "setting an example," in which the reluctant child who resists participation in the creative expression lesson is encouraged by the adult through social modeling; (3) "setting yourself at ease," in which the adult accepts without evaluation the creative expression of the child; and (4) "obtaining an understanding of the child," in which the adult comes to see the child from the child's perspective by understanding feelings of joy, frustration, rivalry, etc., as worked out through interaction with creative materials.

Developing an Understanding of Self and Others (DUSO) (K-8)

This kit is for use in pre-school through junior high school, designed to help and encourage youth to become aware of the relationship between themselves and others and their needs and goals. Eight unit themes create the program's organizational framework: "Understanding and Accepting Self," "Understanding Feelings," "Understanding Others," "Understanding Independence," "Understanding Goals and Purposeful Behavior," "Understanding Mastery, Competence, and Resourcefulness," "Understanding Emotional Maturity," and "Understanding Choices and Consequences." The kit includes: (1) a manual for teachers or counselors with concise, step-by-step instructions for each activity (each DUSO cycle includes a story, a problem situation, a roleplaying activity, and a puppet activity—a cycle typically takes one week to complete); (2) story books containing 41 theme-centered stories, illustrated in full color; audio-cassettes or phonograph records presenting animated narratives of the stories, together with theme songs and activity songs; (3) puppets, including animal and people hand puppets that bring daily episodes and problems to life; and (4) visual materials, including display posters, roleplaying cards, and group discussion cards to illustrate the main points of the DUSO stories (Dinkmeyer, 1970).

Charades (7-12)

Eileen Connolly, a counselor at Baldwin High School in Baldwin, New York, describes a group counseling approach with high school freshmen termed "charades."

Toward the end of the school year, the counselor asks six freshmen to participate in an exercise of "charades." They are instructed to do the following:

> For our next session, prepare non-verbal skits or body movements, which would illustrate feelings, emotions, events or reactions that were demonstrated within the group during this past year. Remember to think about the topics that were discussed, and what occurred as a result. Was anyone ever hurt by what was said during group? Did

> anyone get angry? Did everyone listen at all times? Think about these questions during the week and then present the skits/body movements during group next week.

The following week, the six team members present their skits. After each skit is portrayed, the remaining 13 members of the group attempt to identify what emotion, reaction or event is being illustrated.

After each skit is properly identified, the group members are asked to do the following on paper: (1) identify the emotion that you feel was being conveyed (anger, frustration, excitement, hurt); (2) identify the reaction of the other group members to that emotion; (3) write down how you feel the situation could have been resolved more effectively.

After all of the skits are completed, and group members are given ample time to record their responses, the counselor asks: (1) How difficult was it to identify the event or emotion portrayed? (2) Was the group responsive to the emotion at the time? Did they ignore the emotion? (3) How do you think the situation could have been best handled? (4) Were the group members usually attentive when someone else spoke? Did anyone feel misinterpreted?

After the discussion on each of the skits, group members formulate what they think is a major obstacle to their effective communication, such as poor listening skills.

Communication Skills Development (7-12)

Nancy Kessler, a counselor at Mary Louis Academy in Jamaica Estates, New York, describes a communication skills exercise which she used in group counseling to accommodate a variety of perceptual strengths.

Under the best of circumstances, effective communication is a difficult process that must be continually worked at by those engaged in the relationship built around that communication. With adolescents engaged in group counseling, it is most important to review their personal communication patterns, examine the existing faulty communication systems they have developed, and discuss those influences leading to misinterpretation and misunderstanding which, in turn, lead to the inevitable breakdown in communication and, eventually, the breaking down of the relationship.

This particular strategy draws heavily on Virginia Satir's work in identifying four types of communicating that have a severe negative influence on relationships and self-esteem. Satir, Stachowiak, and Taschman (1975) call them placating, blaming, super reasonable, and irrelevant. In the initial stages of group counseling, members become aware of these types and target such behaviors as generalizing statements, absolute truth statements, displacement defenses, mindreading games, double messages, and getting-the-real-message.

During a mid-session, members are asked to draw on their own experiences with faulty communication and volunteer to roleplay these with other volunteer members. Approximately three situations are roleplayed. After each vignette, members take their personal log and form a written interpretation of what took place. This can be done as succinctly as possible for each member (e.g., brief notes, key phrases, paragraph form, drawing). Discussion follows based around the following questions: (1) Who could identify and in what ways with which particular vignette? (2) What were some of the influences that severely lessened the quality of communication taking place? (3) Who gave whom "license" not to listen? (4) What were some of the non-verbals that were screaming loud messages? (5) Who was a blamer, a placater, super reasonable, irrelevant?

The counselor then directs the group to:

> Sit quietly for a few minutes, take one scenario and imagine it as taking place with optimum communicating conditions.
>
> - Would anyone or a few like to roleplay this for the group?
> - How would the dialogue differ?
> - How would non-verbals differ?
> - What is making effective communication far more difficult for us? Why is ineffective communication so much eaiser?
> - In what ways do you see the quality of your personal communication pattern affecting your feelings of self-worth? What are the dangers here?

A homework assignment follows: Choose one communication interaction that you experience this week and consciously work at improving the quality of the communication. Be prepared to log this before the next session and share it with the group.

Sample adolescent scenarios include the following:

1. Patty's boyfriend Danny has forgotten her birthday. When he picks her up from school that afternoon, she is noticeably cold and angry. When Danny approaches with the question, "Is something wrong, Patty?" she vehemently responds through clenched teeth and raised fist, "No! What makes you think something's wrong?!"
2. Danny has just experienced the worst day of his teenage existence. Patty has broken up with him. He was late for school that morning and had to serve detention. The biology test he was sure he aced came back marked 43%. He finally gets home after missing the bus and is greeted by his mother with, "Hi, Danny. Where have you been?" In turn, Danny replies, "Get off my case, Mom. You're always on my back about where I've been and with whom I'm doing what. Leave me alone!" Danny is informed that he is grounded for the better part of his life for talking like that to his mother.

Career Education Exploration (9-12)

During the exploratory phase of group counseling, the counselor asks a group of 8-12 high school seniors to participate in an imagery exercise. Counselees are instructed as follows:

> Imagine a time in the future—ten years from today. You are approximately 27 years of age. Picture yourself at that age right now. What are you doing? Are you with someone? What does it feel like in your surroundings? What are you thinking about? Spend a few minutes in silence, imagining what your life is like.

After the exercise, the following activities are presented to process the imagery exercise:

1. After paper is distributed to each group member, the counselor says: Draw a picture of your fantasy, including as many people, things, and events as possible. Your picture might be a series of small drawings, not necessarily connected.
2. Next, on the back of your paper write down a description of what you imagined. It is important to get down your feelings and thinking, rather than to focus on writing style and form. You might choose to write down key words, such as "happy," "son and daughter," "famous writer," or "sunshine."

3. Now, let's roleplay several of your fantasies. Would one of you volunteer to share your pictures and writings with the group? (The counselor identifies a counselee whose imagery includes other people and assigns roles to various group members to act out the scene, whether in the home, workplace, or whatever.)

The counselor directs discussion in order to involve counselees in processing their fantasy by asking:

1. Which of the three activities (drawing, writing, roleplaying) did you find easiest? most difficult? (Visually oriented persons find the drawing preferable; auditory and tactual persons prefer the writing; while kinesthetically oriented clients prefer the roleplaying. Visual persons generally find the imagery exercise interesting and "easy to get into.")
2. Let's discuss your fantasy in terms of whether you were alone, or with family and friends. If you pictured yourself married, did you have difficulty imagining what your spouse was like?
3. In your mental picture were you at work? at home? recreating? contemplating?
4. Where were you in your mind's eye? Did you seem to be in a rural or urban area? Was the climate warm or cold? Was it noisy or quiet? (Responses relate to student's environmental preferences.)

A skilled counselor can use this exercise to clarify the values of group members and identify their aspirations, which relate to the area of career decision-making.

Creative counselors can devise a variety of other counseling strategies that provide for multisensory involvement during individual or group counseling.

Developing Effective Study Skills to Accommodate Learning Style (K-12)

Students are expected to apply study skills in a wide variety of learning tasks. For example, last week Sally Brown, a seventh grade student, had the following assignments:

General Science: Read pages 50-80 in the textbook and prepare for an objective test on the content.

Social Studies: Outline Chapter Three in the text and submit the notes from class lectures on "The Causes of Nuclear Proliferation."

French: Learn the meaning of 50 French words and ten idioms and develop sentences in French, using the words and idioms.

English: Prepare a paper on "What It's Like to Be a (area of career interest)," based on readings, interviews with persons in the career, and observations of the work setting of persons engaged in the career.

Mathematics: Complete ten story problems, testing deductive reasoning and basic computational skills, and prepare for a quiz on converting fractions to percentages.

Sally's assignments involve the application of the following basic study skills: (1) reading, (2) vocabulary, (3) test taking, (4) writing, (5) thinking ability, (6) listening, (7) note taking, and (8) time management skills.

Since most secondary schools are departmentalized, there is usually an emphasis upon content areas and careful delineation as to what is taught at each grade level and within each subject matter area. However, frequently the process of teaching and learning is not specified; i.e., (1) how the content is taught (lecture, independent study, individualization, small group techniques, etc.), and (2) how students study, with attention to the development of study skills that can be applied across content and/or discipline areas. This condition suggests that there needs to be a comprehensive approach to developing study skills at all educational levels. For example, English teachers incorporate into the curriculum the instruction in the development of writing skills; general science teachers focus on the development of vocabulary and reading skills; school counselors plan group activities to enhance listening skills; and so forth across the curriculum. With self-contained classrooms at the elementary school level, teachers and counselors can provide for study skill development more readily. The fundamental instructional content within these skill areas and implications for learning style accommodations are outlined below.

Reading (K-12)

Underlining, outlining, highlighting, and summarizing are all methods of focusing attention and increasing understanding of written material. The SQ3R method enhances the processing of information and involves five steps: (1) Survey--glance at chapter headings, read titles and subtitles, determine organizational patterns, read summaries; (2) Question--formulate initial questions about each section to focus further reading; (3) Read--actively search for answers to the questions formulated previously; (4) Recite--answer questions independently, without reference to the text; and (5) Review--list major facts, ideas, concepts under each heading. Additional guidelines that help students acquire proficiency in reading are as follows:

- Identify the learning style elements that enhance concentration, i.e., presence or absence of noise; strong versus dim lighting; time of day preferences; temperature requirements; sociological preferences; and design requirements.

- Underline important facts, ideas, or themes.

- Take notes on the reading material, using symbols, acronyms, diagrams, and outlines (accommodates tactile and visual modalities).

- Engage in speed reading to survey the overall content (right brain dominant congruent).

- Learn to read critically, separating knowledge from opinion, identifying the author's perspective, and determining extent of agreement/disagreement.

Carbo (1983) found that differences in reading styles exist among primary, intermediate, and junior high school students and strongly suggests that alternative approaches must be available to youth at every level. In his studies of cerebral dominance, Zenhausern (1982) found that a sample of good readers was equally divided in regard to right and left brain dominance, but that 85 percent of poor readers were right brain dominant, which suggests that whole word recognition skills need to be developed in this population as opposed to phonetic skills.

Vocabulary (K-12)

In Samuel Johnson's 1755 Dictionary, there were approximately 15,000 words. Today, Webster's Collegiate Dictionary contains approximately 500,000 words. Students need to be exposed to a variety of methods which are designed to increase their working vocabulary:

- When reading, supplement your reading with dictionary work.

- Keep a list of new words in each content area.

- Learn words from their context through inference or contrast.

- Learn words from prefixes and roots. It is estimated that 60 percent of the English language is comprised partially or totally of prefixes and roots derived from Latin and Greek.

- Use new vocabulary words, first in writing and then in speaking. It is through consistent usage that the new word will eventually become part of your established vocabulary.

Test Taking (7-12)

Throughout the educational process students are tested on what they have learned or are challenged to apply basic principles of learning in solving new problems. Some of the skills that enhance the mastery of tests are as follows:

- Preparing for the test through frequent and organized study, adequate rest and diet, and concentrating by blocking out distractions. Study during optimal energy time of day periods.

- Developing skills in taking objective and subjective examinations. For example, in multiple choice type questions, understand the stem statement, look for patterns or analogies, and eliminate questionable responses. In subjective examinations, develop a comprehensive outline, allow enough time for the writing process, and write paragraphs that are coherent and smooth, using examples or illustrations to support major concepts.

- Developing test sophistication in following directions, scanning, pacing, and reviewing questionable responses.

- Learning from examinations, i.e., analyzing the incorrect items and determining reasons for errors as well as classifying errors as to type.

- Managing test anxiety, including replacing negative self-statements with positive ones, building confidence by planning for success, and using relaxation techniques.

Writing (7-12)

Writing assignments at this level can vary from creative writing, theme writing, book report writing, to elementary research writing. Some general writing principles are summarized as follows:

- It is the quality of the idea and the skill with which it is communicated that makes for excellence in writing.

- The process of writing themes, essays, term papers and reports involves: (1) selecting a topic; (2) deciding on the audience; (3) determining the purpose for writing, i.e., informational, persuasive, entertaining; (4) developing questions; (5) researching the topic; (6) developing an outline;

(7) keying research notes to the outline; (8) beginning writing; (9) setting aside the paper and evaluating later; (10) rewriting.

- Collect information efficiently, consulting computer searches, major indexes, journals and books, microfilm, etc.
- Use primary sources (rather than secondary sources) whenever possible.

Thinking Ability (7-12)

Thinking is the process of making the best use of our experiences, facts, and information. Thinking is generally inductive (moving from specific facts or data to forming conclusions and generalizations) or deductive (moving from general premises on the whole to inferring the specifics or parts). Aids to thinking include the following:

- Developing curiosity about the nature of people, things, and the environment-at-large.
- Realizing the importance of suspending judgment until the problem or construct has been investigated.
- Employing problem-solving skills: (1) identifying the problem; (2) analyzing the components of the problem; (3) generating solutions to the problem or identifying alternatives; (4) weighing the pros and cons of each alternative; (5) deciding on a course of action or solution; (6) implementing the decision; and (7) evaluating the decision (utilized predominantly by left brain dominant individuals).
- Employing creative thinking processes: (1) preparation or problem identification; (2) incubation or a period of rest from active thinking about the nature of the problem; (3) illumination or insight into problem resolution; and (4) verification of the extent to which the problem has been solved (utilized predominantly by right brain dominant individuals).

Listening (K-12)

Blocks to effective listening include an inability to concentrate, focusing on your own response rather than being attentive to the speaker, and distractions such as noise. Becoming an active listener involves:

- Attention to non-verbal cues (body language, facial expressions, changes in tone of voice, etc.) to determine the emotional as well as the cognitive content of the message.
- Developing techniques of active listening: (1) clarifying what the speaker has said by rephrasing the message; (2) analyzing the content of the

message to assess the major themes; (3) raising questions as you listen to explore deeper levels of the issue or topic; (4) and summarizing the content of the message by using your own words to express the message.

Counselors can help students develop listening skills in small groups, for example, by having a second speaker first summarize what the previous speaker has said before expounding a new idea or message.

Notetaking (9-12)

The use of cassette tape recorders is a helpful technique for use with lecture-discussion content that is technical. Used in conjunction with notetaking, tape recording is an effective learning device, particularly for students who are auditory in terms of perceptual strength. The Cornell Study Center identifies five basic processes of effective notetaking, termed the 5 R's:

- Record the main ideas or themes.
- Reduce the material by summarizing and noting key terms.
- Recite the key ideas to oneself.
- Reflect and think about the content.
- Review the material through recall.

For students who are tactually oriented, it is helpful to reorganize and recopy notes after class.

Time Management (K-12)

Using time efficiently is frequently a difficult task. Procedures that are helpful to managing time effectively include the following:

- Record keeping procedures should be developed through daily schedules or diaries to identify habits, such as amount of time spent in leisure, study, activities of daily living, etc.

- Schedules should be developed, based on identified habits and incorporating time for study, work, and chores.

- Study time should be blocked out to allow time for each course.

- Realistic goals should be developed for each study session.

- Study breaks should include rewards for time-on-task efficiency.

- Time of day preferences should be assessed and optimal time given to the more difficult tasks or subjects.

- Study activities over a lengthy period of time should be rotated among reading, outlining, notetaking, creative writing, etc.

- Use "odds and ends" of time (waiting in line, riding the school bus) effectively by using review cards, vocabulary lists, etc.

In addition to helping students develop effective study skills by addressing this need across discipline/content areas, it is beneficial to assess each student's individual learning style preferences so that the student, teachers, counselors, and parents can accommodate these individual preferences. An analysis of individual learning style preferences will help define the how of students' study skills development. Individual learning style preferences need to be assessed in such areas as the following:

- Does the student learn better alone, with peers, or with adults present?

- Is learning enhanced by studying at the same place regularly or does the student require mobility and informal design for optimal learning?

- Is content mastered best through auditory, visual, tactual, or kinesthetic modalities or some combination of these modalities?

- Does the student function best with a high degree of structure and specificity of task, or is an open-ended, global assignment more likely to utilize the student's unique, creative abilities?

- Is the presence or absence of sound required?

- Does concentration improve with intake, snacking, drinking?

- Does the student prefer dim or bright lights?

- Is learning enhanced in a cool versus warm environment?

Dunn (1984) suggests that accommodating perceptual strengths is critical in the studying/learning process. She asserts that new material should be introduced through the student's primary perceptual modality (auditory versus visual versus tactual/kinesthetic) and reinforced through secondary modalities, as illustrated in Table 9.

To summarize, the most effective approach to developing study skills in students is to plan for the acquisition of these skills across content areas in concert with the individual learning style preferences of each student.

Table 9

HOW TO...LEARN/REMEMBER...NEW/DIFFICULT...INFORMATION/SKILLS...EFFECTIVELY

YOUR PERCEPTUAL STRENGTHS OVER 60	INTRODUCE THROUGH:[1]	REINFORCE THROUGH:[2]	REINFORCE THROUGH:	USE NEW KNOWLEDGE CREATIVELY BY MAKING:[3]
AUDITORY	Lectures, cassettes, records, tapes, radio, discussions	Reading, films, filmstrips, television, transparencies	Taking notes from the introduction and reinforcement	**A tape after the lecture, reading and notetaking; describe the important things that you have been learning and play the tape back until you remember well and can describe the major points without notes.**
VISUAL	Reading, films, filmstrips, television transparencies	Taking notes as you read or watch resources	Reading your notes onto a cassette and playing the tape back until you recall the important points.	**A written, graphic overview of all the major points. Illustrate each point as well as you can. Color the illustrations.**
TACTUAL/ KINESTHETIC	Task cards, learning circles, electroboards, body games[4]	Reading, films, filmstrips, television, transparencies	Making task cards, learning circles, electroboards, body games	**Explain the Task Cards or other materials you made onto a cassette tape. Have a friend use the materials and simultaneously play the tape and answer your questions on the major points.**

[1] This technique is based on extensive research that demonstrates that when students are taught through their strongest perceptual preferences, increased academic achievement is evidenced at statistically significant levels (see Table 2).

[2] Through more than a decade of field-based research, we repeatedly have found that when new and difficult knowledge or skills are introduced through the strongest perceptual preferences and then reinforced through secondary and tertiary preferences, students learn more, more easily and retain better that they did previously (see Roberta Wheeler, "Teaching Reading According to Students' Perceptual Strengths," *Kappa Delta Pi Record*, Indiana: Kappa Delta Pi 17, 2 (December, 1980): 59-63.

[3] Between 1967-1974 we found that if students had to *use* new material they were learning in a creative way, we could increase their ability to retain by approximately 20 percent (see Dunn and Dunn, *Teaching Students Through Their Individual Learning Styles: A Practical Approach* Englewood Cliffs, NJ. Prentice Hall, Inc. (1978): 89.)

[4] These are tactual/kinesthetic resources that can be made easily. For explicit directions, see Dunn and Dunn, *Teaching Students Through Their Individual Learning Styles: A Practical Approach*, Englewood Cliffs, Prentice Hall, Inc. (1978): 317-358; also see, Angela Bruno, "Hands-On Wins Hands Down," *Early Years*, Darien, CT. Allen Raymond, Inc. 13, 2 (October, 1982): 60-67.

Note. From "How Should Students Do Their Homework?" by R. Dunn, 1984, *Early Years*, *15*(4), pp. 43-45. Copyright 1984 by Allen Raymond, Inc. Reprinted by permission.

CHAPTER IV
RESEARCH ON LEARNING STYLES

Educators need to be accountable. In recent years the demand for accountability has increased, and administrators, teachers, and counselors are expected to be able to furnish evidence of accomplishments and gains in order to ensure public support. To be accountable means to be responsible--responsible for relevant data-based goals, cost efficient and effective procedures, and measurable outcomes (Gibson, Mitchell, & Higgins, 1983). Accountability should begin with a review of the research in the area of teaching and learning to determine which approaches work in practice.

In this chapter the research on learning styles in the areas of teaching, learning, and counseling is reviewed. An additional resource for securing up-to-date research on learning styles is The Center for the Study of Learning and Teaching Styles, co-sponsored by the National Association of Secondary School Principals (NASSP) and St. John's University. The Center sponsors a national network of institutions interested in learning styles, publishes a newsletter on current practices, designs inservice workshops for teachers, counselors, and administrators on learning styles, and assists graduate students and practitioners in the design of research on learning styles.

Research on Learning Styles in Teaching and Learning

The learning style model has been tested extensively in the areas of teaching and learning. An expanding core of research demonstrates the importance of accommodating individual learning style preferences within the learning process. Studies have been conducted with elementary school children (Carbo, 1980; Krimsky, 1982; Perrin, 1984; Pizzo, 1981; Urbschat, 1977; Virostko, 1983; Weinberg, 1983; Wheeler, 1983), middle school students (DeBello, 1985; Dunn, 1981; Griggs, 1982; Trautman, 1979), high school students (Ballinger & Ballinger, 1983; Kroon, 1985; Lynch, 1981; Tanenbaum, 1982), and adult populations (Freeley, 1984; Spires, 1983) in various settings, including urban (Dunn, 1981; Weinberg, 1983; Wheeler, 1983) and suburban (DeBello, 1985; Griggs & Price, 1979; Price, Dunn, Dunn, &

Griggs, 1981), and with various groups, including high risk (Dunn & Dunn, 1974; Lynch, 1981; Martin, 1977; Weinberg, 1983), learning disabled (Wheeler, 1983), bilingual (Spiridakis, 1981), culturally different (Button, 1977), and gifted students (Cody, 1983; Dunn & Price, 1980; Griggs, 1984; Griggs & Price, 1980a, 1980b; Ricca, 1983). Findings indicate that there is significant improvement in academic achievement (Brown, 1978; Cafferty, 1980; DeBello, 1985; Krimsky, 1982; Kroon, 1985; Pizzo, 1981; Shea, 1983), student attitudes (Domino, 1970; MacMurren, 1985; Martin, 1977; Perrin, 1984; Pizzo, 1981), and student behavior (DeBello, 1985; Dunn, 1981; Jackson, 1978; Tanenbaum, 1982; Trautman, 1979; Urbschat, 1977; Virostko, 1983; Weinberg, 1983; Wheeler, 1983), when individual learning style preferences are accommodated through complementary teaching styles, instructional approaches, or resources.

Table 10 outlines the research on teaching through individual learning styles that has resulted in increased academic achievement, improved student attitudes toward school (learning and/or improved student behavior in school). Among the 26 experimental studies outlined in Table 10, ten studies involved students at the elementary school level, five involved students at the junior high school level, eight involved students at the senior high school level, and three were conducted with college populations.

Research on Learning Styles in Counseling

An experimental study was conducted by Griggs, Price, Kopel, and Swaine (1984) to determine the effects of group counseling on sixth grade students with different learning styles. The purpose of the study was to isolate some of the key variables in the counseling process, match or mismatch counseling strategies in relation to student learning style preferences, and evaluate counseling outcomes. Specifically, the study raised the following question: What are the effects of group counseling with sixth grade students, using career eudcation interventions that are either compatible or incompatible with the learning style elements of (1) low motivation and high need for structure versus (2) high motivation and low need for structure.

Table 10

Research on Teaching Through Learning Styles Results in Increased Academic Achievement and Improved Attitudes

Researcher, Title, University	Population	Findings
John Franklin Adams. "The Effects of the Satisfaction of the Learning Style Preference on Achievement, Attrition, and Attitude of Palm Beach Junior College Students." Ed.D. Dissertation, Florida Atlantic University, 1983.	Junior College Students	When learning styles of students were congruent with instructional styles, the matched group received higher grade point averages, fewer failing grades, and required less individual attention than the mismatched group.
Patricia Brennan. "An Analysis of the Relationship Among Hemispheric Preference and Analytic/Global Cognitive Style, Two Elements of Learning Style, Method of Instruction, Gender, and Mathematics Achievement of Tenth Grade Geometry Students." Ed.D. Dissertation, St. John's University, 1984.	Tenth Graders	1. Neither globals nor analytics, rights nor lefts, nor males versus females achieved better by comparison. 2. A trend toward higher achievement was evidenced when the instructional approach was congruent with cognitive style.
Elsie Cafferty. "An Analysis of Student Performance Based Upon the Degree of Match Between the Educational Cognitive Style of the Teachers and the Educational Cognitive Style of the Students." Ed.D. Dissertation, University of Nebraska, 1980.	High School Teacher/Student Pairs	1. The greater the match between the student's and the teacher's style, the higher the grade point average. 2. The greater the mismatch between the student's and the teacher's style, the lower the grade point average.
Marie Carbo. "An Analysis of the Relationships Between the Modality Preferences of Kindergarteners and Selected Reading Treatments as They Affect the Learning of a Basic Sight-Word Vocabulary." Ed.D. Dissertation, St. John's University, 1980.	Kindergarten Children	Children taught through their strongest perceptual modalities learned more easily and retained better than when taught through either their secondary or tertiary strengths (or weaknesses).

Researcher, Title, University	Population	Findings
Thomas C. DeBello. "A Critical Analysis of the Effects on Achievement and Attitudes of Administrative Assignments to Social Studies Instruction Based on Individual Eighth Grade Students' Sociological Preferences for Learning Alone, with Peers, or with Teachers." Ed.D. Dissertation, St. John's University, 1985.	Eighth Graders	The sociological preferences of 236 students were identified and they were assigned to classes based on their preference for learning alone, with peers, or with teachers. Students wrote compositions and then experienced revision strategies that were congruent and incongruent with their learning styles. Findings revealed that peer learners scored higher (.01) when matched with the peer conferencing technique, teacher-oriented learners scored higher (.01) with self-review than incongruent methods. No learning style group achieved better than any other, but a significant interaction occurred between individual sociological preferences and the matched method of revision (.001). Additionally, the attitudes of students who preferred to learn alone or with an adult were significantly more positive (.01) when they were matched with compatible techniques.
Joan Della Valle. "An Experimental Investigation of the Relationship(s) Between Preference for Mobility and Word Recognition Scores of Seventh Grade Students to Provide Supervisory and Administrative Guidelines for the Organization of Effective Instructional Environments." Ed.D. Dissertation, St. John's University, 1984.	Seventh Graders	Analysis of the relationships among the need to learn while moving, the environment in which instruction occurs, and the effect of both on word-pair recognition scores revealed that when placed into settings congruent with preference for mobility, achievement scores increased significantly.
George Domino. "Interactive Effects of Achievement Orientation and Teaching Style on Academic Achievement." ACT Research Report, 39 (1970):1-9.	College Students	Students taught in ways they believed they learned scored higher on tests, factual knowledge, attitude, and efficiency than those taught in a manner dissonant from their orientation.

Researcher, Title, University	Population	Findings
Claudia B. Douglass. "Making Biology Easier to Understand." The American Biology Teacher 41, 5 (May, 1979):277-299.	High School Students	Deductive students taught through deductive biology materials and inductive students taught through inductive materials each achieved better than when mismatched.
Sheila Jaronsbeck. "The Effects of a Right-Brain Mathematics Curriculum on Low-Achieving Fourth Grade Students." Doctoral Dissertation, University of South Florida, 1984.	Fourth Graders	1. The ratio of rights to lefts was greater at the lower end of the achievement continuum than at the higher end. 2. Lefts achieved better than rights in the conventional control groups. 3. Rights achieved better than lefts in activity-oriented groups. 4. Rights learned better when taught through manipulatives and when skills were sequenced from the concrete to the pictorial before being taught abstractly.
Naomi Katz. "The Interactive Effects of Occupational Therapy Students' Learning Style with Teaching Methods on Their Problem-Solving Skills, Achievement, Study Time and Attitude: An Aptitude-Treatment Interaction Study." Ph.D. Dissertation. University of Southern California, 1981.	College Students	1. The effects of matching undergraduate college students' learning styles with two instructional methods demonstrated that in complementary conditions they scored higher on problem-solving and required less study time than those in mismatched conditions. 2. Graduate students scored higher and studied less regardless of teaching method.
Jeffrey S. Krimsky. "A Comparative Study of the Effects of Matching and Mismatching Fourth Grade Students With Their Learning Style Preferences for the Environmental Element of Light and Their Subsequent Reading Speed and Accuracy Scores." Ed.D. Dissertation, St. John's University, 1982.	Fourth Graders	Students who preferred bright light performed statistically significantly better when tested in brightly lit areas; those who preferred reading in dim light did equally as well in a low-light setting. Both groups performed statistically less well when tested in mismatched situations.

Research, Title, University	Population	Findings
D. K. Kroon. "An Experimental Investigation of the Effects on Academic Achievement and the Resultant Administrative Implications of Instruction Congruent and Incongruent with Secondary School Industrial Arts Students' Identified Learning Style Perceptual Preferences." Ed.D. Dissertation, St. John's University, 1985.	High School Industrial Arts Students	The perceptual strengths of 78 students were identified. A series of six lessons (two auditory, two visual, two tactual) were presented to each student, but in varying sequences. Achievement tests administered after each lesson indicated that lessons matched to students' perceptual preferences resulted in higher test scores (.01). When new information was introduced through individuals' strongest perceptual preferences, and then reinforced through secondary preferences, achievement increased further (.05).
Peter Lynch. "An Analysis of the Relationships Among Academic Achievement, Attendance, and the Individual Learning Style Time Preferences of Eleventh and Twelfth Grade Students Identified as Initial or Chronic Truants in a Suburban New York District." Ed.D. Dissertation, St. John's University, 1981.	Eleventh and Twelfth Graders	1. When matched with their time of day preferences and teacher assignment, chronic truants attended school more frequently. 2. Significant interaction occurred among degree of truancy, learning style preference and English teacher assignment, suggesting that time preference was a crucial factor in the reversal of truancy patterns.
Harold MacMurren. "A Comparative Study of the Effects of Matching and Mismatching Sixth Grade Students with Their Learning Style Preferences for the Physical Element of Intake and Their Subsequent Reading Speed and Accuracy Scores and Attitudes." Ed.D. Dissertation, St. John's University, 1985.	Sixth Graders	Forty students, randomly assigned to two treatment groups based on either intake or no intake preferences, were administered tests in either a complementary or dissonant environment. Results, using a two-way ANOVA, evidenced that those students in an environment complementary to their preferences for intake scored significantly higher in achievement (.001) and attitudes (.003) than a mismatched group.

Researcher, Title, University	Population	Findings
Michael K. Martin. "Effects of the Interaction Between Students' Learning Styles and High School Instructional Environment." Doctoral Dissertation, University of Oregon, 1977.	High School Students	Independent students achieved better in an alternative instructional environment in comparison to a traditional environment and evidenced improved attitudes toward education.
Peggy Murrain. "Administrative Determinations Concerning Facilities Utilization and Instructional Grouping. An Analysis of the Relationships Between Selected Thermal Environments and Preferences for Temperature, An Element of Learning Styles, as They Affect the Word Recognition Scores of Secondary School Students." Ed.D. Dissertation, St. John's University, 1983.	Seventh Graders	Subjects were tested twice with a word recognition test: once in an instructional setting that was congruent with their preference and once in a dissonant environment. Students performed better in an environment that matched their thermal preferences.
Janet Perrin. "An Experimental Investigation of the Relationships Among the Learning Style Sociological Preferences of Gifted and Nongifted Primary Children, Selected Instructional Strategies, Attitudes and Achievement in Problem Solving and Word Recognition." Ed.D. Dissertation, St. John's University, 1984.	First, Second, and Third Graders	1. Achievement was significantly higher and attitudes more positive when students were taught through approaches that matched their diagnosed sociological preferences. (Learning alone vs. peers vs. adults.) 2. Gifted children learned best with their peers.
Jeanne Pizzo. "An Investigation of the Relationships Between Selected Acoustic Environments and Sound, an Element of Learning Style, as They Affect Sixth Grade Students' Reading Achievement and Attitudes," Ed.D. Dissertation, St. John's University, 1981.	Sixth Graders	1. When students were matched with their learning style preferences, statistically significantly higher reading and attitude scores resulted at the .01 level. 2. Students who were mismatched achieved statistically significantly below the matched students.

Researcher, Title, University	Population	Findings
Thomas C. Shea. "An Investigation of the Relationships Among Preferences for the Learning Style Element of Design, Selected Instructional Environments and Reading Test Achievement of Ninth Grade Students to Improve Administrative Determinations Concerning Effective Educational Facilities." Ed.D. Dissertation, St. John's University, 1983.	Ninth Graders	1. Mean reading comprehension scores of students tested in an environment congruent with their preference for an informal design were significantly higher than those of their peers tested in an incongruent setting. 2. Those who preferred a formal design performed almost as well in the informal setting because of their ability to adapt.
Rhonda Tanenbaum. "An Investigation of the Relationship(s) Between Selected Instructional Techniques and Identified Field Dependent and Field Independent Cognitive Styles as Evidenced Among High School Students Enrolled in Studies of Nutrition," Ed.D. Dissertation, St. John's University, 1982.	Tenth, Eleventh and Twelfth Graders	Field independent students provided low structure and field dependent students provided high structure performed statistically significantly better when taught through complementary (matched) methods.
Paul Trautman. "An Investigation of the Relationship Between Selected Instructional Techniques and Identified Cognitive Style." Ed.D. Dissertation, St. John's University, 1979.	Junior High School Students	1. Whenever the instructional materials were matched correctly to the student's identified style, statistically significant academic gains were made; whenever the materials and styles were mismatched, achievement fell below that of both matched groups. 2. There was no difference between the relative achievement of analytic and global students when they each were taught through materials that matched their styles.

Researcher, Title, University	Population	Findings
Karen S. Urbschat. "A Study of Preferred Learning Modes and Their Relationship to the Amount of Recall of CVC Trigrams." Ph.D. Dissertation, Wayne State University, 1977.	First Graders	1. Modality strengths can be identified among first graders. 2. Superior and significant results occurred when a treatment was matched to the appropriate modality. 3. Most of the first graders in the study found it easier to learn through either a visual or a combined auditory/visual treatment than solely through an auditory approach.
Joan Virostko. "An Analysis of the Relationships Among Student Academic Achievement in Mathematics and Reading, Assigned Instructional Schedules, and The Learning Style Time Preferences of a New York Suburban School's Students." Ed.D. Dissertation, St. John's University, 1983.	Third, Fourth, Fifth, and Sixth Graders	1. Students were assigned to two periods of mathematics and two periods of reading each day for a two-year education. During the first year, each child was matched for one subject and mismatched for the other, and during the second year the subject schedules were reversed. 2. Students whose time preferences were congruent with their class schedules achieved significantly higher in mathematics and reading than those who were not matched.
Frederick H. Weinberg. "An Experimental Investigation of the Interaction Between Modality Preference and Mode of Presentation in the Instruction of Arithmetic Concepts to Third Grade Underachievers." Ed.D. Dissertation, St. John's University, 1983.	Third Graders	Students who evidenced either high auditory/high visual or low auditory/low visual modalities were randomly selected and taught a subtraction unit with either matched or mismatched instructional materials. Each group of students performed significantly better on a standardized achievement test when taught through complementary strategies.

Researcher, Title, University	Population	Findings
Roberta Wheeler. "An Investigation of the Degree of Academic Achievement Evidenced When Second Grade Learning Disabled Students' Perceptual Strengths Are Matched and Mismatched with Complementary Sensory Approaches to Beginning Reading Instruction." Ed.D. Dissertation, St. John's University, 1973.	Second Graders	Learning disabled second graders, who were introduced to new words through their identified perceptual strengths, scored significantly higher on vocabulary tests than those taught through discrepant modalities.
Regina T. White. "An Investigation of the Relationship Between Selected Instructional Methods and Selected Elements of Emotional Learning Style Upon Student Achievement in Seventh and Eighth Grade Social Studies." Ed.D. Dissertation, St. John's University, 1980.	Seventh and Eighth Graders	1. Persistent and responsible students achieved statistically significantly higher than students with low persistence and responsibility scores. 2. Students identified as being persistent and responsible also were identified as manifesting conforming behavior. 3. Less persistent and less responsible students did not learn through conformity.

This study is outlined in detail so that school counselors can be provided with a model for conducting research on the effectiveness of counseling students through their learning style preferences. The hypotheses raised in the study were as follows:

(1) There are no significant differences among the adjusted post-test mean scores of sixth grade students, following a career education group counseling intervention, in compatible versus incompatible versus control groups, on career maturity as measured by the Career Maturity Inventory (CMI).

(2) There are no significant differences among the adjusted post-test mean scores of sixth grade students, following a career education group counseling intervention, in compatible versus incompatible versus control groups, on occupational listings as measured by the Occupational List Recall Test (OLRT).

Procedures

The population of this study was 165 students, who were enrolled in grade six in a middle school of Long Island, New York. The school is located in a predominantly white, upper-middle income suburban community. The Learning Style Inventory (Dunn, Dunn, & Price, 1985) was administered to all students. Two elements of the inventory were used to select students: motivation and structure. Students who were one standard deviation above or below the mean were identified and grouped as follows:

Group 1: high motivation, low structure—24 students.

Group 2: low motivation, high structure—8 students.

Permission slips were sent to the parents of these 32 students, outlining the purposes of the career education group counseling intervention, and permission to substitute group counseling in lieu of the regular curriculum was requested. Parental permission was obtained for six students in each group. These 12 students were randomly assigned to one of two counseling groups as follows:

Group 1: High Structure Counseling Group

Compatible: low motivation, high structure—3 students.
Incompatible: high motivation, low structure—2 students.

Group 2: Low Structure Counseling Group

Compatible: high motivation, low structure—4 students.
Incompatible: low motivation, high structure—3 students.

From among the remaining 133 students, who were within one standard deviation of the mean on motivation and structure, seven students were selected randomly to comprise the control group. Thus, 19 students were pre- and post-tested, using the *Career Maturity Inventory* and the *Occupational List Recall Test*.

The *Career Maturity Inventory* (Crites, 1978) provides information on the competencies that are important for career decision-making. Overall scores range from 0 to 100, with each of the five subtests having a raw score range from 0 to 20. The *Occupational List Recall Test* (Westbrook, 1972) measures career awareness. Subjects were instructed to list as many jobs, occupations, or careers as possible within a 15 minute period and the lists were verified against the *Dictionary of Occupational Titles*.

Both the high structure and low structure counseling groups were co-led by two doctoral candidates in counselor education, who had at least three years experience in group counseling. A total of eight group counseling sessions were conducted weekly over a two month period. The objectives for both counseling groups were the same, although the strategies varied, as described in Table 11. All students attended at least seven of the eight sessions.

Analysis

A one way analysis of covariance was used to analyze the data. The independent variable had three levels: compatible, incompatible and control. (The sample size was not large enough to further divide the groups to test for possible interaction effects between compatible learning styles and structured and unstructured group counseling.)

The covariates consisted of pre-test scores on the CMI and OLRT. An alpha level of $P \leq .05$ was used to test for significant differences.

Results

The comparison of the compatible vs. incompatible vs. control groups for the CMI indicated there was not a significant difference (see Table 12) among groups. The adjusted post-test means were 44.71, 49.84 and 52.98 ($F=1.67$, $P \leq .22$). The comparison of the groups for the adjusted OLRT post-test score was significant at $P \leq .01$ (F-6.51). The students in the compatible group had an adjusted mean of 50.68, incompatible 45.56 and control 38.26 (see Table 12).

Table 11

Group Counseling Objectives and Strategies

Objectives	High Structure Strategies	Low Structure Strategies
Session 1		
A. Introduction of leaders and members. B. Purpose of meetings, expectations, guidelines. C. Explore the topic, "What I can do best."	A. Name games; wearing name tags. B. Leaders discuss group objectives and ask for reactions. C. Distribute paper; each person writes a response which is read.	A. Go around: "Tell us something about yourself." B. Leaders ask: "What do you expect to gain from our meetings together?" C. Divide into dyads: interview each other; interviewee speaks to the group.
Session 2		
Values clarification: to understand how time is spent each day and to compare it to "my ideal of how time should be spent."	Draw a large circle on the board. "This circle represents a segment of your life. Consider how you spend a typical weekday. Divide up the circle, estimating what part you spend in sleep, school, work, friends, alone, TV, chores, etc." Are you satisfied with the relative size of your slices? Draw your ideal pie.	Discuss the following questions: - How I spend my time on a typical school day. - Things I'd like to change! Those things I'd like to spend more time on or less time on.
Session 3		
Values clarification: to clarify those jobs associated with high value versus those with less value. To become aware of sex role stereotyping in jobs.	United Nations Problem: You are a member of a group that must decide which five persons will be representatives to a U.N. peace committee, e.g., medical student, bookkeeper, policeman, olympic athlete, etc.	Discuss the following questions: - Which jobs in our society do most people consider very important? less important? - Are there some jobs mostly men do? women? why?

Objectives	High Structure Strategies	Low Structure Strategies
Session 4 SRA guide: "The Connection," to understand that certain kinds of people like certain kinds of jobs.	Show the ten minute filmstrip, "The Connection." During the second showing discuss each of the 50 pictures, following the discussion guide.	Show the ten minute filmstrip, "The Connection." Discuss the filmstrip overall: - What are your reactions? - What is meant by matching people to jobs?
Session 5 To become knowledgeable concerning the working conditions associated with various jobs.	Each of us will talk for a few minutes about one job and then group members will ask questions about salary, job duties, etc. I'll go first with "What it is like to be a counselor."	Let's identify various working conditions and match them with types of jobs: - Working outdoors (lineman, mailman, forester). - Working with machines (auto repair, secretary, data processor).
Session 6 To identify personally with an occupation and to develop realism concerning working environments.	Each member roleplays an occupation as directed by the leaders. Members "guess" the occupation. Feelings are elicited as to the accuracy of the roleplay and the specific job.	Group members select an occupation of their choice and perform skits, either individually or in dyads. Feelings are elicited.
Session 7 To continue to explore the realities of work environments.	Show the SRA guide filmstrip. Filmstrip is shown twice and discussion questions are used from the manual.	"What you see is what you get." Members take turns reading aloud the printed word portion of the filmstrip. Discussion questions emanate from the group.

<table>
<tr><th>Objectives</th><th>High Structure Strategies</th><th>Low Structure Strategies</th></tr>
<tr><td>Session 8</td><td></td><td></td></tr>
<tr><td rowspan="2">To increase knowledge of occupational families and develop awareness of "fit" between personality and job.</td><td colspan="2">Holland's theory of occupational choice is simply and briefly explained. The six theme types are written on the board and defined.</td></tr>
<tr><td>Each theme type is discussed separately, with leaders providing examples of jobs within each category. Utilizing a "game" format, members vie for adding the greatest number of jobs to the list.</td><td>"How many occupations can you think of and to which category does each occupation belong?" Each member answers the question individually with subsequent discussion of their choices and categorizations.</td></tr>
</table>

Table 12

Analysis of Variance Results

Treatment Group	Covariates				Dependent Variables			
	CMI Pre-test		Jobs Scores Pre-test		CMI Post-test		Jobs Post-test	
	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
Compatible N=7	36.43	15.93	36.14	5.76	41.86 Adjusted 44.71	16.45	49.14 Adjusted 50.68	6.64
Incompatible N=5	41.80	11.56	39.6	7.09	51.20 Adjusted 49.84	9.73	46.40 Adjusted 45.56	7.50
Control N=7	43.00	16.15	39.43	7.30	54.86 Adjusted 52.98	6.34	39.0 Adjusted 38.06	8.04
F 1st	11.45		1.87		1.67			
Analysis $p \leq$	.005		.19		.22			
F 2nd	1.73		3.15				6.51	
Analysis $p \leq$	.21		.09				.01	

Discussion

The results for the first hypothesis are difficult to explain. They would indicate that the scores of the subjects involved in the treatment groups did not increase as much (an average gain of 7.42 from pre- to post-testing), whereas the control group gained an average of 11.86 points from pre- to post-testing. The test administrator indicated that the students were resistant to re-taking the CMI. This resistance may have resulted in less change.

However, the students with learning styles compatible to the type of treatment had significantly higher scores on the OLRT. Students having a learning style preference for structure matched with a structured treatment, and students having a learning style preference for little structure matched with an unstructured treatment, did significantly better in the area of career awareness as measured by the OLRT than did students who were in the treatment (structured or unstructured) that was incompatible with their learning style.

The findings in this study should be considered tentative, because of the small number of students. However, the results suggest that improvement will be greater if students are matched to the type of counseling intervention that is compatible with the learning style preferences for structure and motivation. Further research is needed to isolate additional learning style elements to ascertain their effects on counseling outcomes.

Future Research

Future research is needed to isolate each of the 22 learning style variables to ascertain the effect on counseling outcomes. A number of researchers have emphasized the importance of including personal characteristics, such as learning style and personality traits, as independent variables in conducting research on the effectiveness of various counseling methods.

Rosenthal (1977) studied the effectiveness of various counselor training approaches on trainees with low versus high conceptual levels. He concluded that "comparing the results of one training method without considering trainee characteristics and learning style, as well as multiple assessment of skills, may lead to incomplete conclusions on the effectiveness of these methods" (p. 236). Similarly, Kivlighan, Hageseth, Tipton, and McGovern (1981) investigated the effects of matching treatment approaches and personality types (task-oriented versus people-oriented) in group vocational counseling. They assert that "the literature on vocational counseling is replete with research in which no differences were found between various approaches in counseling. In most of the studies in which no differences between counseling methods were found, treatments were compared without regard to relevant personality variables of participants; the researchers implicitly made the uniformity assumption" (p. 319).

Research cited previously indicates that significant improvement in academic achievement, student attitudes, and behavior results when individual learning style preferences are accommodated through complementary teaching styles, instructional approaches, or resources. Additional experimental research needs to be conducted in the area of accommodating learning style preferences through complementary counseling approaches to determine if improved counseling outcomes are achieved.

School counselors, who have limited time and resources for conducting experimental research, might utilize the case study method. Case studies could be conducted with students by (1) keeping anecdotal notes and case notes on individual students, noting baseline data in behavioral areas such as academic achievement, attendance, attitudes toward school, etc.; (2) counseling students over a period of time, using counseling interventions which are compatible with their individual learning style preferences; and (3) assessing post-counseling behavioral changes and comparing these changes with the baseline data.

CONCLUSION

The major purpose of this monograph is to provide counselors in elementary and secondary schools with information on learning styles to enable them to diagnose the learning style of each student, utilize counseling interventions that complement individual learning style preferences, and consult with teachers and parents regarding accommodating student learning style preferences in the classroom and at home.

Applying the learning style approach to counseling involves (1) assessing the learning style of each student; (2) identifying patterns within the counseling caseload for grouping students according to learning style preferences, e.g., by sociological preferences, perceptual strengths, and structure preferences; (3) interpreting learning style requirements of students for counseling purposes (Table 2) and applying complementary counseling approaches; and (4) evaluating student outcomes as a result of using the learning styles model.

This monograph assists counselors in operationalizing the learning style approach. Case studies are provided to assist counselors in applying the model at the elementary and secondary school level. The learning style needs of special populations (gifted, physically disabled, school dropouts) are described. Descriptions of counseling programs that use learning style preferences in counseling are provided. Lastly, research studies are outlined that show evidence that utilizing the learning styles approach in teaching and counseling results in improved academic achievement, more positive attitudes toward school, and selected developmental gains, such as increased career awareness.

Fundamentally, providing for the individual learning style preferences of students requires no additional counselor time or resources, apart from the assessment tools. The learning style model is based on providing for individual differences among students, and counselors, perhaps more than any other group of educators, have traditionally recognized the uniqueness of each individual student. Indeed, the Ethical Standards for School Counselors (ASCA, 1984) state that "each person has the right to self-direction and self-development" and "the school counselor has a primary obligation and loyalty to the pupil, who is to be treated with respect as a unique individual" (p. 1). The learning style approach places more responsibility for learning on students; counselors who interpret learning style profiles to students find that students can use their individual strengths to adapt teaching and learning techniques.

Implementing the learning style approach in counseling implies changes--a change in reconceptualizing the counseling process, to begin with student preferences and needs, and then expanding the range of counseling interventions/strategies/techniques to accommodate an array of student differences. Within any school there are educators who find the prospect of change threatening and who adhere to traditional, ingrained practices, while others recognize the desirability of changes that show evidence of improved student outcomes. Counselors should recognize the feasibility of "phasing in" the learning style model, beginning with applying the model to a limited number of students and consulting with teachers who show promise of responding to individual differences within the classroom. Counselors can expand their awareness and knowledge of learning style differences by: (1) visiting schools that use the learning style approach in teaching, learning, and counseling; (2) joining the Learning Style Network to receive the services described in this monograph; (3) reading more extensively in the area of learning styles; and (4) attending conferences, inservice workshops, and professional meetings on learning style implementation.

REFERENCES

Adams, J. F. (1983). *The effects of the satisfaction of the learning style preference on achievement, attrition, and attitude of Palm Beach Junior College students.* Unpublished doctoral dissertation, Florida Atlantic University, Boca Raton.

ASCA. (1984, March). Ethical standard for school counselors. *American School Counselor Association.* Adopted by the ASCA Delegate Assembly.

Bagley, M. (1975). Play and the basic needs of children. *Counseling and Values, 20,* 19-24.

Ballinger, V., & Ballinger, R. (1983). Teaching foreign language in style: Identifying and accommodating learner needs. In *The foreign classroom new techniques* (pp. 92-101). Lincolnwood, IL: National Textbook.

Bandler, R., & Grinder, J. (1979). *Frogs into princes.* Moab, UT: Real People Press.

Barnett, E. L. (1972). I come not to praise Caesar (nor to bury him). *The School Counselor, 20,* 248-256.

Barbe, W. B., & Milone, M. N. (1982). Modality characteristics of gifted children. In *Gifted child teacher* (pp. 2-5). Mobile, AL: G/C/T Publishing.

Bell, T. (1984). *Statistical report on U.S. public schools.* Washington, DC: U.S. Office of Education.

Benderly, B. L. (1981, March). The multilingual mind. *Psychology Today,* pp. 9-12.

Beutler, L. E. (1983). *Eclectic psychotherapy: A systematic approach.* Elmsford, NY: Pergamon Press.

Biggers, J. L. (1980). Body rhythms, the school day, and academic achievement. *Journal of Experimental Education, 49,* 45-47.

Blackham, C. J. (1977). *Counseling: Theory, process, and practice.* Belmont, CA: Wadsworth Publishing.

Bolocofsky, D. N. (1980). Motivational effects of classroom competition as a function of field dependence. *Journal of Educational Research, 73,* 111-115.

Brennan, P. (1984). *An analysis of the relationships among hemispheric preference and analytic/global cognitive style, two elements of learning style, method of instruction, gender, and mathematics achievement of tenth grade geometry students.* Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Brooks, A. (1980, April). The inner clock: A new timepiece for learning. Teacher, pp. 48-50.

Brown, R. (1978). The effects of congruency between learning styles and teaching styles on college student achievement. College Student Journal, 12, 44-47.

Burt, M. A., & Myrick, R. D. (1980). Developmental play: What's it all about? Elementary School Guidance and Counseling, 15, 14-21.

Button, C. B. (1977). Teaching for individual and cultural differences: A necessary interaction. Educational Leadership, 34, 6.

Cafferty, E. (1980). An analysis of student performance based upon the degree of match between the educational cognitive style of the teachers and the educational cognitive style of the students. Unpublished doctoral dissertation, University of Nebraska, Lincoln, NE.

Carbo, M. L. (1980). An analysis of the relationship between the modality preferences of kindergarteners and selected reading treatments as they affect the learning of a basic sight-word vocabulary. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Carbo, M. L. (1983). Reading styles change between second and eighth grade. Educational Leadership, 40, 56-59.

Cody, C. (1983). Learning styles, including hemispheric dominance: A comparative study of average, gifted, and highly gifted students in grades five through twelve. Unpublished doctoral dissertation, Temple University, Philadelphia.

Coop, R. H. (1968). The effects of cognitive style and teaching method on categories of achievement. Unpublished doctoral dissertation, Indiana University, Bloomington.

Crites, J. O. (1978). Manual: Career maturity inventory. Monterey, CA: CTB/McGraw-Hill.

Cross, J. A. (1982). Prevalence of internal locus of control in artistically talented students. Unpublished research project, University of Alabama, University.

Daniel, R. W., & Weikel, W. J. (1983). Trends in counseling: A delphi study. Personnel and Guidance Journal, 61, 327-331.

DeBello, T. C. (1985). A critical analysis of the effects on achievement and attitudes of administrative assignments to social studies instruction based on individual eighth grade students' sociological preferences for learning alone, with peers, or with teachers. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Della Valle, J. (1984). An experimental investigation of the relationship(s) between preference for mobility and the word recognition scores of seventh grade students to provide supervisory and administrative guidelines for the organization of effective instructional environments. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Diebold, J. (1984). Making the future work: Unleashing our powers of innovation for the decades ahead. New York: Simon & Schuster.

Dinkmeyer, D. C. (1970). Developing an understanding of self and others. Circle Pines, MN: American Guidance Services.

Domino, G. (1970). Interactive effects of achievement orientation and teaching style on academic achievement. ACT Research Report, 39, 1-9.

Douglass, C. B. (1979). Making biology easier to understand. The American Biology Teacher, 41, 277-299.

Dunn, K. (1981). Madison prep: Alternative to teenage disaster. Educational Leadership, 38, 386-387.

Dunn, R. (1984). How should students do their homework? Early Years, 15(4), 43-45.

Dunn, R., Carbo, M., & Burton, E. (1981). Breakthrough: How to improve early reading instruction. Kappan, 62, 281.

Dunn, R., Cavanaugh, D. P., Eberle, B., & Zenhausern, R. (1982). Hemispheric preference: The newest element of learning style. The American Biology Teacher, 44, 291-294.

Dunn, R., & Dunn, K. (1974). Learning style as a criterion for placement in alternative programs. Phi Delta Kappan, 55, 275-279.

Dunn, R., & Dunn, K. (1978). Teaching students through their individual learning styles: A practical approach. Reston, VA: Reston Publishing.

Dunn, R., Dunn, K., & Price, G. E. (1982). Manual: Productivity environmental preference survey. Lawrence, KS: Price Systems.

Dunn, R., Dunn, K., & Price, G. E. (1985). Manual: Learning style inventory. Lawrence, KS: Price Systems.

Dunn, R., & Price, G. E. (1980). Identifying the learning style characteristics of gifted children. Gifted Child Quarterly, 24, 33-36.

Edmonds School District. (1983). School dropouts: A study and final report. Lynnwood, WA: Edmonds School District, Student Services Department.

Freeley, M. E. (1984). *An investigation of the relationships among teachers' individual time preferences, inservice workshop schedules, and instructional techniques and the subsequent implementation of learning style strategies in participants' classrooms.* Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Gadwa, K., & Griggs, S. A. (1985). The school dropout: Implications for counselors. *The School Counselor, 33,* 9-17.

Gardner, R. A. (1971). *Therapeutic communication with children: The mutual storytelling technique.* New York: Science House.

Gibson, R. L., Mitchell, M. H., & Higgins, R. E. (1983). *Development and management of counseling programs and guidance services.* New York: Macmillan.

Glasser, W. (1969). *Schools without failure.* New York: Harper & Row.

Griggs, S. A. (1981). Diagnostic process: Counseling for individual learning styles. *NASSP Bulletin, 65,* 23-27.

Griggs, S. A. (1982). Counseling different learning styles. *Educational Leadership, 39,* 30.

Griggs, S. A. (1984). Counseling the gifted and talented based on learning styles. *Exceptional Children, 50,* 429-432.

Griggs, S. A., & Dunn, R. (1984). Selected case studies of the learning style preferences of gifted students. *Gifted Child Quarterly, 18,* 115-119.

Griggs, S. A., & Price, G. E. (1979). Learning styles of the gifted. In *Student learning styles: Diagnosing and prescribing programs.* Reston, VA: National Association of Secondary School Principals.

Griggs, S. A., & Price, G. E. (1980a). A comparison between the learning styles of gifted versus average suburban junior high school students. *Roeper Review, 4,* 7-9.

Griggs, S. A., & Price, G. E. (1980b). Learning styles of gifted versus average junior high school students. *Kappan, 61,* 361.

Griggs, S. A., & Price, G. E. (1981). Self-concept relates to learning style in the junior high school. *Kappan, 62,* 604.

Griggs, S. A., Price, G. E., Kopel, S., & Swaine, W. (1984). The effects of group counseling with sixth grade students using approaches that are compatible versus incompatible with selected learning style elements. *California Association for Counseling and Development Journal, 5,* 28-35.

Hansen, J. C., Warner, R. W., & Smith, E. J. (1980). *Group counseling: Theory and process* (2nd ed.). Chicago: Rand McNally College Publishing.

Hart, L. A. (1978). The new brain concept of learning. *Kappan, 59,* 394-396.

Havighurst, R. (1952). *Human development and education.* New York: McKay.

Hodges, H. (1984). *An analysis of the relationships among preferences for a formal/informal design, one element of learning style, academic achievement, and attitudes of seventh and eighth grade students in remedial mathematics classes in a New York City alternative junior high school.* Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Hollis, J. W., & Wantz, R. A. (1984). *Counselor preparation* (5th ed.). Muncie, IN: Accelerated Development.

Hudes, S., Saladino, A., & Siegler, D. (1977). Learning style sub-scales and self-concept among high achieving third graders. *The Journal, 7,* 7-10.

Hunt, D. E. (1979). Learning style and student needs: An introduction to conceptual level. *Student learning styles: Diagnosing and prescribing programs.* Reston, VA: National Association of Secondary School Principals.

Jackson, D. E. (1978). *An assessment of the behavior of children working without direct supervision alone or in pairs with manipulative materials on teacher-designed tasks self-selected or teacher-assigned.* Unpublished doctoral dissertation, Teachers College, Columbia University, New York.

Jaronsbeck, S. (1984). *The effects of a right-brain mathematics curriculum on low-achieving fourth grade students.* Unpublished doctoral dissertation, University of South Florida, Tampa.

Jesse Jackson. (1984, May 7). *Time,* p. 30.

Kagan, J. (1966). Reflection-impulsivity: The generality and dynamics of conceptual tempo. *Journal of Abnormal Psychology, 71,* 17-24.

Kaley, S. B. (1977). *Field dependence-independence and learning styles in sixth graders.* Unpublished doctoral dissertation, Hofstra University, Hempstead, NY.

Katz, N. (1981). *The interactive effects of occupational therapy students' learning style with teaching methods on their problem-solving skills, achievement, study time, and attitude: An aptitude-treatment interaction study.* Unpublished doctoral dissertation, University of Southern California, Los Angeles.

Keefe, J. W. (1979). Learning style: An overview. In *Student learning styles: Diagnosing and prescribing programs.* Reston, VA: National Association of Secondary School Principals.

Kiernan, O. B. (1979). Foreword. In *Student learning styles: Diagnosing and prescribing programs.* Reston, VA: National Association of Secondary School Principals.

Kirby, P. (1979). Cognitive style, learning style, and transfer skill acquisition. Columbus, OH: National Center for Research in Vocational Education, Ohio State University.

Kivlighan, Jr., D. M., Hageseth, J. A., Tipton, R. M., & McGovern, T. V. (1981). Effects of matching treatment approaches and personality types in group vocational counseling. Journal of Counseling Psychology, 28, 315-320.

Krimsky, J. S. (1982). A comparative study of the effects of matching and mismatching fourth grade students with their learning style preferences for the environmental element of light and their subsequent reading speed and acccuracy scores. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Kroon, D. K. (1985). An experimental investigation of the effects on academic achievement and the resultant administrative implications of instruction congruent and incongruent with secondary school industrial arts students' identified learning style perceptual preferences. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Loviglio, L. (1980). Teaching by the body's clock. The Massachusetts Teacher, 60, 8-15.

Lynch, P. K. (1981). An analysis of the relationships among academic achievement, attendance, and the individual learning style time preferences of eleventh and twelfth grade students identified as initial or chronic truants in a suburban New York school district. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Lyne, N. A. (1979). The relationship between adult students' level of cognitive development and their preference for learning format. Unpublished doctoral dissertation, University of Maryland, University Park.

MacMurren, H. (1985). A comparative study of the effects of matching and mismatching sixth grade students with their learning style preferences for the physical element of intake and their subsequent reading speed and accuracy scores and attitudes. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Martin, M. K. (1977). Effects of the interaction between students' learning styles and high school instructional environment. Unpublished doctoral dissertation, University of Oregon, Eugene.

Matson, G. (1980). Modifying the impulsive cognitive learning style by instructional materials and teacher modeling. Unpublished doctoral dissertation, Florida State University, Tallahassee.

Mayo, G. D. (1955). Effects of temperature upon technical training. Journal of Applied Psychology, 39, 244-246.

McLeod, D. B., & Adams, V. M. (1979). The interaction of field independence with small group instruction in mathematics. *Journal of Experimental Education, 48,* 118-124.

Mosher, R. (1980). *Counseling and human development--the odd couple.* Address delivered at the American Personnel and Guidance Association Convention, Atlanta, GA.

Murrain, P. (1983). *Administrative determinations concerning facilities utilization and instructional grouping: An analysis of the relationship(s) between selected thermal environments and preferences for temperature, an element of learning styles, as they affect the word recognition scores of secondary school students.* Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Nystul, M. S. (1978). The use of creative arts therapy with Adlerian psychotherapy. *The Individual Psychologist, 15,* 11-18.

Odom, R., McIntyre, C. W., & Neale, G. S. (1971). The influence of cognitive style on perceptual learning. *Child Development, 42,* 883-891.

Parloff, M. B. (1980). *Psychotherapy and research.* Frieda Fromm-Reichman Memorial Lecture, Washington University School of Psychiatry, St. Louis, MO.

Peer, G. G. (1985). The status of secondary school guidance: A national survey. *The School Counselor, 32,* 181-190.

Perrin, J. (1981). *Primary version. Learning style inventory.* Jamaica, NY: St. John's University, Learning Style Network.

Perrin, J. (1984). *An experimental investigation of the relationships among the learning style sociological preferences of gifted and nongifted primary children, selected instructional strategies, attitudes, and achievement in problem-solving and word recognition.* Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Pietrofesa, J. J., Hoffman, A., Splete, H. H., & Pinto, D. V. (1978). *Counseling: Theory, research, and practice.* Chicago: Rand McNally College Publishing.

Pizzo, J. (1981). *An investigation of the relationships between selected acoustic environments and sound, an element of learning style, as they affect sixth grade students' reading achievement and attitudes.* Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Price, G. E. (1980, July). *Research using the learning style inventory.* Paper presented at the Second Annual Conference on Teaching Students through their Individual Learning Styles, New York.

Price, G. E., Dunn, K., Dunn, R., & Griggs, S. A. (1981). Studies in students' learning styles. *Roeper Review, 4,* 38-40.

Randolph, N., & Howe, W. (1973). Self-enhancing education: Its focus. Symposium on Group Procedures and Human Relations Training for Educators, University of Georgia, Athens.

Ricca, J. (1983). Curricular implications of learning style differences between gifted and nongifted students. Unpublished doctoral dissertation, State University of New York, Buffalo.

Rosenthal, N. R. (1977). A prescriptive approach for counselor training. Journal of Counseling Psychology, 24, 231-237.

Rovner, S. (1982, May 21). Healthtalk: New light on depression. The Washington Post, Washington, DC, p. B5.

Satir, V. M., Stachowiak, J., & Taschman, H. A. (1975). Helping families to change. New York: Aronson.

Schmeck, R., & Lockhart, D. (1983). Introverts and extroverts require different learning environments. Educational Leadership, 40, 54-55.

Shea, T. (1983). An investigation of the relationship(s) among preferences for the learning style element of design, selected instructional environments and reading test achievement of ninth grade students to improved administrative determinations concerning effective educational facilities. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Show business: Shirley MacLaine. (1984, May 14). Time, p. 62.

Sigel, I. E. (1967). Sigel conceptual style test. Princeton: Educational Testing Service.

Smith, D. (1982). Trends in counseling and psychotherapy. American Psychologist, 37, 809.

Spires, R. D. (1983). The effect of teacher inservice about learning styles on mathematics and reading achievement. Unpublished doctoral dissertation, Bowling Green State University, Bowling Green, OH.

Spiridakis, J. N. (1981). Diagnosing the learning styles of bilingual students and prescribing appropriate instruction. In R. Padila (Ed.), Ethnoperspectives in bilingual education research III (pp. 307-320). Ypsilanti, MI: Eastern Michigan University.

Tanenbaum, R. (1982). An investigation of the relationship(s) between selected instructional techniques and identified field dependent and field independent cognitive styles as evidenced among high school students enrolled in studies in nutrition. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Toeffler, A. (1970). Future shock. New York: Bantam Books.

Trautman, P. (1979). An investigation of the relationship between selected instructional techniques and identified cognitive style. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Urbschat, K. S. (1977). A study of preferred learning modes and their relationships to the amount of recall of CVC trigams. Unpublished doctoral dissertation, Wayne State University, Detroit.

Virostko, J. (1983). An analysis of the relationships among student academic achievement in mathematics and reading, assigned instructional schedules, and the learning style time preferences of a New York suburban school's third, fourth, fifth, and sixth grade students. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Wasson, F. R. (1980). A comparative analysis of learning styles and personality characteristics of achieving and underachieving gifted elementary students. Unpublished doctoral dissertation, Florida State University, Tallahassee.

Weinberg, F. H. (1983). An experimental investigation of the interaction between modality preference and mode of presentation in the instruction of arithmetic concepts to third grade underachievers. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Westbrook, B. W. (1972). Career knowledge test. Chapel Hill, NC: Center of Occupational Information.

Wheeler, R. (1983). An investigation of the degree of academic achievement evidenced when second grade learning disabled students' perceptual strengths are matched and mismatched with complementary sensory approaches to beginning reading instruction. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

White, R. (1980). An investigation of the relationship between selected instructional methods and selected elements of emotional learning style upon student achievement in seventh grade social studies. Unpublished doctoral dissertation, St. John's University, Jamaica, NY.

Zenhausern, R. (1978). Revised dominance scale. Jamaica, NY: St. John's University, Department of Psychology.

Zenhausern, R. (1982). Rights and lefts and how they learn. Early Years, 51, 67.